Gleanings in Bee Culture

Established 1873

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September, 1941

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U. S. GOVERNMENT REPORT

Information from Producing Areas (first half of August)

California Points: Southern California.—The weather has been generally clear, except for morning fogginess near the coast, and temperatures have ranged from normal to above normal. Near the end of the period varying amounts of rain fell in the southern mountain and desert areas. In a few sections the rain totaled over 2 inches and caused considerable damage. Bees are flying daily and making about enough to live on but little surplus. Wild buckwheat, eucalyptus and lima beans are all being worked on slightly by the bees, and in alfalfa or sweet clover areas bees worked on these sources also. Demand was moderate to fairly good, with prices generally holding steady on the lighter grades of honey, while the prices on the darker grades of honey were slightly weaker. Eastern demand for California honey was largely confined to Orange, Sage, and Sage-Buckwheat. Prices paid beekeepers per case of 120 lbs., at Southern California delivery points: Orange, Extra White to Water White $6.60-6.75, few sales $6.90-7.05, White $6.00-6.30, few sales $6.60 per case; Sage, Extra White to Water White $6.60-6.90, few sales $7.05, White $6.00-6.30, few sales low as $5.70; Extra Light Amber Sage-Buckwheat $5.10-5.40, few sales $5.50-5.60. Sales at country points—Blythe District, Light Amber to Extra Light Amber Alfalfa $5.30-5.40 per case. Beeswax has continued in good demand at higher prices. Buyers paid beekeepers 25-27c, mostly 26-26½c per lb. for good quality yellow wax delivered Los Angeles, and darker grades of wax sold at 24c per lb.

Imperial Valley.—Light rains have fallen on one or two occasions in this section and in the area to the east. Few sales Light Amber to Extra Light Amber Alfalfa reported at 4½c per lb.

Central California.—Temperatures have averaged slightly above normal along the coast and slightly below normal in the interior valleys. About half the colonies are below normal in working strength as the summer flow starts. Supplies of honey and pollen are ample at present. Some bees are being brought into the cotton-areas from outside sections. Cotton is yielding well and blue curl fairly well, but a good crop is now looked for from blue curl.

SUMMARY—Temperatures were persistently high over most of the country during this period, and coupled with this have been drouth conditions in many of the main honey sections. This hot, dry weather curtailed the flow from clover and sweet clover in much of the Plains States area and in the important North Central and East Central Clover Belt. Unfavorable weather in the Mountain States has also cut the crop in that section to perhaps half to three-quarters of normal, with only occasional locations reaching 100 per cent. Widely varying reports are received from the Plains States and the White Clover Belt, but in general the entire Plains Area has a crop above last year's, and some beekeepers have a crop 50 per cent above that

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of 1940. Wisconsin seems to have the largest crop, relatively, in the White Clover Belt, though Minnesota and Illinois also report crops above last year's. Indiana may come up to that of 1940, but Ohio will probably average below normal. Lack of rainfall did not cut the New York crop as much as expected and it appears to be above the output of recent years in spite of a short crop in eastern and northern New York. The buckwheat flow is late and uncertain in New York State, but apparently will be of good size in Pennsylvania. The quality of this year's honey crop varies widely. The Mountain States, the West Coast States, and the Plains Area apparently have a crop that is exceptionally light in color and heavy in body. Both body and color vary in the White Clover Belt, though some beekeepers report the best honey in many years. This year's crop of comb honey will be short everywhere. Rain is needed if the fall flow is to be of any volume.

Sales of new crop honey are opening up very slowly. Though some new honey has been sold most commercial beekeepers are waiting before selling in the hope that the market may strengthen. There seems to be a widespread feeling among commercial beekeepers that this year's crop of honey not only should sell but will sell at prices above last year's and many prefer to wait in the hope of getting top market prices. Though some honey has sold at last year's levels, many sales have been made at ½c per pound above last year's prices, and in some cases at 1c per pound above 1940 figures. Beeswax continues its upward trend, with the market strong due to the inability of buyers to secure as much foreign beeswax as usual. Many large eastern buyers unable, because of scarcity of ships, to get their orders for foreign beeswax, placed months ago, are making inquiries for domestic wax. Price ranges for beeswax are exceptionally wide.

Monthly Report of Honey Producers

Early in August we sent the following questions to honey producers: 1. How does the honey flow (if any) thus far compare with normal? Give answer in per cent. 2. What is your estimate at this time of the 1941 honey crop in your region as compared with the average during the past five years? Give answer in per cent. 3. At what price has honey been sold or contracted for, if any, in large lots (carload or less) in your locality during the past month for (a) extracted honey, per pound (b) comb honey, fancy and No. 1, per case? 4. What are prices when sold to grocers in case lots of (a) extracted honey in 5-lb. pails, or other retail packages in terms of 5-lb. pails? (b) comb honey, fancy and No. 1, per case? 5. What is the retail price to consumers in your locality of (a) extracted honey in 5-lb. pails, or other retail packages in terms of 5-lb. pails? (b) comb honey, fancy and No. 1, per section? 6. How is honey now moving on the market in your locality? Give answer in one word, as slow, fair or rapid. 7. Is there any of last year's honey left in the hands of producers in your locality? If so, what per cent of last year's crop was carried over? The answers received are tabulated as follows:

		1.	2.	3.		4.		5.		6.	7.
			1941					To			1940
August		Honey	honey	Large lots.		To grocers.		consumers.		Move-	carry-
date.	State. Name.	flow.	crop.	Ex.	Comb.	Ex.	Comb.	Ex.	Comb.	ment.	over.
7	S-Ala. (J. C. Dickman)	100	100			.45		.55		Fair	
11	B. C. (A. W. Finlay)			.10½		.70		.95			
11	S-Calif. (L. L. Andrews)	50	125	.05½	4.00			.51	.20	Fair	0
11	S-Calif. (Geo. Larinan)			.05½						Fair	0
6	C-Calif. (Davis Bros.)	50	20	.04½						Fair	
11	SE-Colo. (Otis E. Adcock)	50	75	.04½		.38		.50		Slow	50
6	E-Conn. (Allen Latham)	100	200			.75	4.75	1.00	.29	Fair	0
6	C-Fla. (Harry Hewitt)	200	150			.50		.65		Slow	0
6	SE-Ga. (J. J. Wilder)	80	60	.06	.08*	.50	.55	.60	.65	Fair	0
12	NC-Ills. (A. L. Kildow)	100	100					.50		Slow	0
7	S-Ills. (Carl E. Killion)	125			3.00	.45	3.50	.57	.18	Fair	0
13	NC-Ind. (T. C. Johnson)	85	100			.40	3.00	.50	.18	Fair	0
7	NW-Ind. (E. S. Miller)	125	125			.50	3.60	.65	.20	Slow	5
18	W-Iowa (E. G. Brown)	150	200	.05				.50	.15	Rapid	0
11	N-Maine (O. B. Griffin)	100	105				4.50		.26	Slow	5
7	S-Mich. (Floyd Markham)	150	150	.05½	3.00	.45	3.60	.75	.20	Fair	0
7	C-Mich. (E. D. Townsend)	80	80	.06						Fair	0
11	E-Minn. (Floyd W. Ray)	100	110	.05		.33		.45		Fair	0
11	W-Minn. (B. L. Morehouse)	90	85			.45		.55	.18	Slow	10
18	C-Nebr. (J. H. Wagner)	20	125	.06	2.00	.42	2.40	.49	.15	Slow	0
15	W-N. M. (C. A. Baltzley)	100	120	.05		.45		.60	.22	Fair	0
11	NW-N. Y. (Geo. B. Howe)	90	95	.06	3.60	.50	3.60	.65	.25	Fair	
6	C-N. Y. (F. W. Lesser)	150	150	.06½	3.40			.60	.20	Fair	2
8	C-N. Y. (N. L. Stevens)	125	100			.40		.60	.15	Slow	0
7	SE-N. C. (W. J. Martin)	50	40	.06		.60		.80	.20	Fair	0
11	NC-Okla. (C. F. Stiles)	100	100			.43		.63	.16	Fair	0
8	C-Pa. (Harry Beaver)	125	125	.05½		.50	3.50	.60	.17	Fair	2
7	SE-Pa. (D. C. Gilham)	110	150			.70	4.25	1.00	.25	Slow	12
13	W-S. C. (E. S. Prevost)	90	80			.17		1.12		Fair	0
7	SE-S. D. (J. F. Norgren)	110	150					.39	.15	Slow	5
11	C-Tenn. (J. M. Buchanan)	100	150					.75	.20	Fair	0
11	C-Texas (T. A. Bowden)	20	20			.45		.55		Slow	10
8	S-Texas (J. N. Mayes)	50	25	.05				.30		Slow	10
8	S-Texas (H. B. Parks)	100	100	.04¾		.47		.55		Fair	0
18	S-Va. (T. C. Asher)	95	100			.50	3.50	.60	.20	Fair	0
5	N-W. Va. (W. C. Griffith)	25	50					.45		Slow	0
11	SE-Wisc. (N. E. France)	75	75	.05		.35		.50	.15	Slow	5
11	N-Wyo. (Earl C. Reed)	50	75			.40		.49	.15	Slow	10

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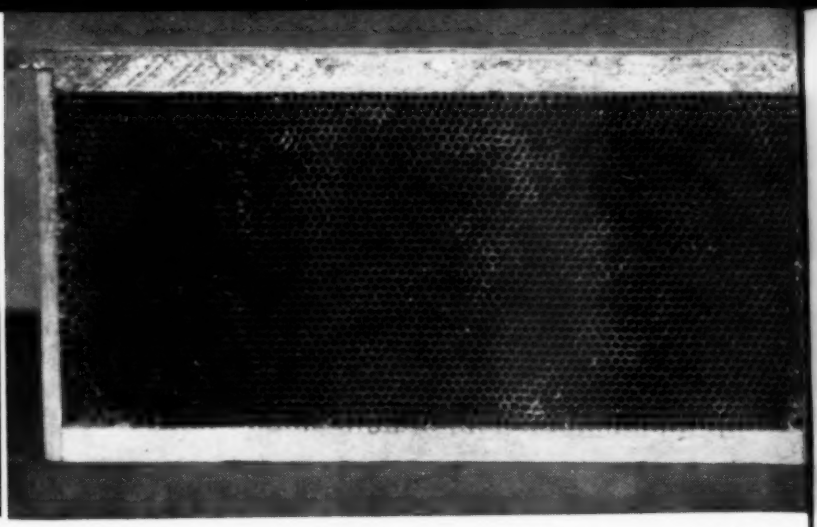

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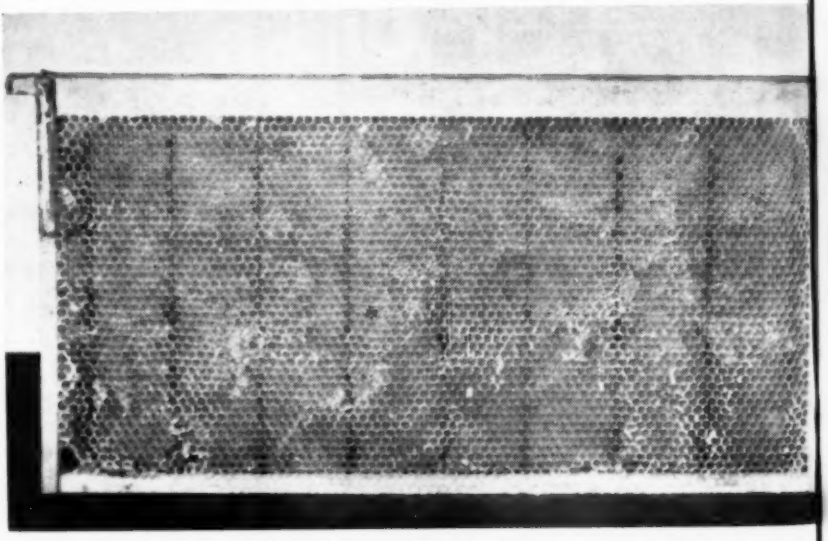

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Vol. 69
No. 9

Gleanings
in Bee Culture

September
1941

Some Observations on Wintering

By J. H. Merrill, Ph. D.
(Formerly in charge of the Beekeeping Experimental Station at Manhattan, Kansas)

At the risk of being considered rash, I am volunteering some observations on wintering. These were prompted by a reading of the Symposium on Wintering in the October issue of the 1940 Gleanings. Probably my remarks will not add anything new to the discussion or improve the tenor of the same. However, I offer them just to have my "say in the matter."

After having read the Symposium, one would conclude that what beekeeping needs is a Judge Landis to pass on and settle all disputes. Such a judge would find it convenient to use a yard-stick to help in forming an opinion as to the best methods of wintering bees. For such a yard-stick the number of bees present in each colony at the beginning of the honey-flow might serve as a criterion. Since three one-foot rulers equal a yard, then the three rulers that make up a beekeeper's yard-stick are: first, the number of bees present in each colony in the fall; second, the amount of stores and the room for clustering and brood-rearing in each colony; and third, insulation.

Probably the judge would ask two questions: first, what is the object of using special practices for wintering bees? and, second, how is one to know whether or not these methods have been successful?

The first question should be regarded from various angles. Should we consider that our bees have wintered well just because some of them have endured confinement in a concentration camp and have been subjected to an endurance test? Should we be satisfied just because all of our bees did not die during the winter, or even if enough bees have remained in each hive in the spring to become strong enough to take advantage of the late honey flow? Or should our objective be to have our colonies become strong before the main flow begins? If this last should occur, then the colonies could either be divided or it might happen that they could take advantage of a hitherto unsuspected source of nectar. Dr. Phillips found that well wintered colonies gathered sizeable amounts of honey from tulip poplars, an early blooming variety of trees.

As to the second question: how do we know when bees have wintered well? It is as difficult a question to answer as: is a man happily married? At present we have no definite standards to help us answer such a question. Are we going to compare the results obtained one year with those of another year? Are we going to judge all colonies on the same date or will we make our decisions at various times throughout the year? Are we going to take into account all of the factors which influence the wintering of bees or are we going to omit one or two of them and then blame our failure on those that we did put into practice?

When in Kansas, at the Experimental Station, we conducted experiments on different methods of wintering bees. During the continuation of these experiments we never lost a colony. Would this justify us in concluding that all of our methods had been 100 per cent successful, es-

pecially since the bees in these experiments were wintered under six different conditions? To repeat, since our experimental colonies were wintered under six varying conditions, and, as the results of these methods were always determined on a given date, we obtained more accurate data than if our observations had been made from year to year.

At all times we endeavored to have our colonies headed by young queens of the same age and stock and in so far as possible uniform in strength. So we fulfilled the requirements of the first one-foot ruler.

All colonies were kept on platform scales and changes in weights were recorded daily as well as a daily record of meteorological conditions. One-half of the hives were protected by a dense wind-break of shrubbery while the other set of hives was placed in the open where they were subjected to the prevailing winds.

In each set there were one-story hives, two-story hives, and insulated hives. The insulated hives were so protected from adverse weather conditions that the packing material used for insulation always remained dry.

The exact number of bees in each hive was determined at the beginning and again at the close of winter.

We did not pay any particular attention to securing so-called "upward ventilation", that is, we did not bore holes in the upper part of our hive because we were not bothered by damp or moldy combs. The colonies in the main bee-yard were always placed on hive stands filled with leaves, and on top of the inner covers we placed supers also filled with leaves. This was done to make it easier for the bees to keep warm rather than for the purpose of providing upper ventilation.

We always used the wide side of the bottom-boards and for entrance closures we used blocks of wood in which five three-eighths of an inch holes had been bored. As the weather grew colder these holes were closed with stoppers, until finally each hive had but one three-eighths inch hole for an entrance.

In this manner we tried to satisfy all of the conditions required by three one-foot rulers.

A study of the daily changes in weight showed how much honey was consumed each day and from this we drew inferences as to what went on inside of the hives.

The hives in the open consumed more honey in keeping warm than did corresponding hives protected by a windbreak. By this, I mean that they seemed more easily disturbed and required more food during the colder parts of the winter than did the wind-protected colonies. This may have been due to any of a number of causes, such as sunlight increasing warmth within the hive, or a cold wind decreasing it. The daily rate of consumption of honey in the one and the two-story uninsulated hives was greater than in the insulated hives. The former continued to rear brood longer and oftener in the winter than did bees in the insulated colonies.

It might be of interest to state here that judging from the shortness of duration of the periods of increased honey consumption it is safe to assume that although eggs were laid and larvae fed, probably none of these ever reached maturity. This frequent rearing of brood weakened rather than increased the strength of the colony. A graph plotted to show the daily rate of consumption of stores in each colony would be much more ragged in the uninsulated than in the insulated colonies.

While the bees in the insulated colonies consumed only a minimum amount of stores during the winter they began consuming honey at enormously increased rates after spring brood-rearing had really begun. In other words, the uninsulated colonies exceeded in the amounts of honey consumed for the purpose of keeping warm, while the insulated colonies exceeded in the amount of stores used at a time when they were using the honey for the rearing of brood.

Between October 7th and January 6th, the bees in the one-story unpacked hives consumed on an average two ounces of honey daily, except at various intervals when they consumed three ounces a day. This increased amount was probably used for brood-rearing. After the winter became established, they resumed their average consumption of two ounces daily until March 16, at which time brood-rearing began in earnest, and they again consumed three ounces daily.

It is interesting to compare the average daily rates of the amounts of honey consumed in the one-story hives that were not protected by a windbreak with those which were protected. During the greater part of the winter, the average daily con-

sumption of the protected hives was one ounce, except during those periods of brood-rearing when it rose to two ounces daily. Yet when spring brood-rearing began, the average daily consumption in the protected colonies was greater than in the unprotected colonies. The significance of this increased amount of honey used for brood-rearing is shown by the fact that the protected colonies reared more brood and, consequently, needed more honey for food. When the wintering yard-stick was applied to these two types of colonies it was found that the one-story colonies protected by a windbreak averaged for four years 6,978 more bees in the spring.

One of the one-foot rulers which go to make up our yard-stick calls for plenty of stores and room. There is not space enough in a one-story hive to provide sufficient room for stores, clustering space, and brood-rearing at the same time. This is shown by a comparison of the results of wintering bees in one-story hives and in two-story hives.

During the four years of this experiment, the one-story unprotected hives without a windbreak, averaged 11,718 bees in the spring, while the two-story hives similarly situated had 16,406 bees. We used two ten-frame hives, but if we take into consideration the number of cells in ten-frames I believe that two eight-frame hives or one ten-frame hive with a shallow super, or perhaps a larger hive body with frames of Jumbo depth would have been more satisfactory than the two-story hives which actually had more room than they really needed.

It requires about 1,000 cells to hold a pound of honey. Thus, in a ten-frame Langstroth hive, which contains 50,000 cells, it would be impossible to leave 50 pounds of stores, and have room enough for the bees to winter well.

With the insulated colonies, the periods for winter brood-rearing were not as frequent nor as long as in the uninsulated colonies. The rate of honey consumption during the coldest part of the winter was very constant, yet, after brood-rearing began in earnest, the amount of honey consumed daily increased rapidly. In fact, in order to have twenty pounds of honey remaining in such a hive on April first it would have been necessary to have left 54 pounds in the fall of the year. That the bees in the insulated colonies made good use of the honey which they consumed in the spring is shown by the fact that insulated colonies protected by a windbreak had 28,838 more bees in the spring than they had in the fall, and the insulated colonies unprotected by a windbreak had a four-year average of 11,053 more bees in the spring than in the fall. The insulated colonies averaged five and three-quarters frames of brood in the spring.

The one-story uninsulated and unprotected colonies averaged 109 less bees in the spring than they had in the fall. The one-story unpacked hives protected by a windbreak averaged 7087 more bees in the spring than in the fall. The two-story hives averaged about 15,000 and 16,000 more bees in the spring than in the fall. The insulated, unprotected colonies averaged 30,000 more bees in the spring, while the insulated protected colonies averaged 36,000. Thus was fulfilled the requirement of our second one-foot ruler of the yard-stick.

For the third one-foot ruler, we always provided enough bees in the fall to constitute a strong colony. We were not conducting experiments to see how few bees we could use. We always had plenty of bees, good queens, and as many stores as possible in the various types of hives used. In this manner we tried to fulfill all of the conditions required by three one-foot rulers.

It is unsafe to conclude that it is unnecessary to protect bees in the winter just because your locality has so-called open winters. During the four years which we conducted this experiment our bees wintered with lower death rates during the hard winters than they did in the open ones. This was partly due to the fact that in the uninsulated colonies brood-rearing began every time we had a warm spell followed by a cold spell. As before mentioned, probably none of this brood reached maturity. The disturbance in the colony and extra work in feeding them caused a serious drain on the energy of the bees. Everyone knows that the length of life of a honeybee depends upon how rapidly it depletes its energy. The insulated colonies were not subjected to the drain of frequent brood-rearing and the bees were thus able to conserve their energy so that the colonies were much stronger in the

(Continued on page 601)

The Manitoba Commercial Honey Cooling Apparatus

By Erdman Braun
Dominion Experimental Farm
Brandon, Manitoba, Canada

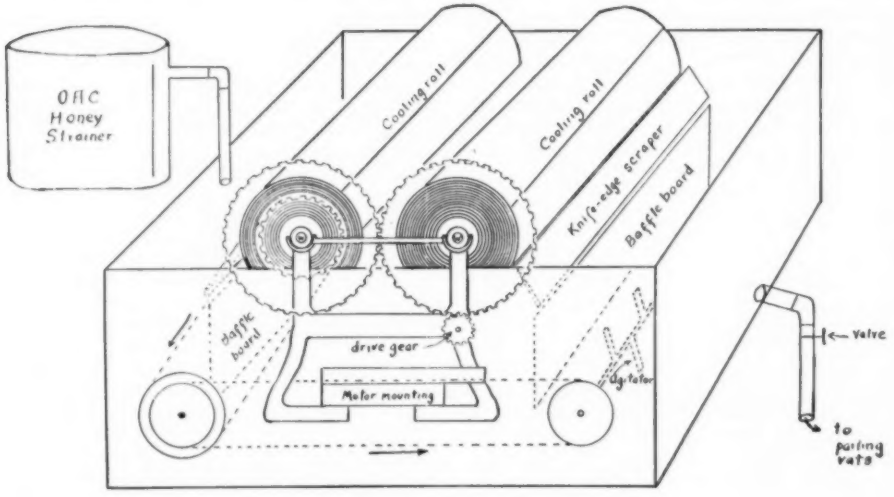
Introduction:

The cooling of honey on a commercial basis, without causing deterioration in the color or flavor, has claimed the attention of research workers, bottlers, and packers of honey for many years. Practically all of the authorities on the subject affirm that after heating honey to the desired degree, the main requisite is rapidity in cooling. Dr. E. J. Dyce, formerly Professor of Apiculture, Ontario Agricultural College, Guelph, Ontario, suggested an idea to Mr. William Agar, formerly Vice-President of the Ontario Honey Producers' Co-operative, that honey in commercial quantities might be cooled more rapidly by partially immersing the cooling rolls in a 6000-pound batch of heated honey. Prior to this suggestion, honey in commercial plants in Canada had been cooled by various means but practically all of the methods in vogue worked on the principle of cooling thin films of honey. Mr. Wm. Agar suggested to the directors of the Manitoba Co-operative Honey Producers' Ltd. that they experiment with Dr. Dyce's suggestion and on receiving their approval, Mr. Agar designed and had constructed the apparatus herein described. The following illustration with the accompanying description outlines the construction and the results achieved with the modified lard-type honey cooling rolls as used in the Manitoba plant.

Construction and Operation.

A. **Cooling Vat**—The inside dimensions are, width, 49¾ inches, length, 81½ inches, and depth, 32½ inches. The vat was constructed of two by six inch planking, stoutly re-inforced at the corners, and lined with monel metal to facilitate cleaning operations; the holding capacity of the tank being 6000 pounds of honey, with sufficient leeway to allow for an additional 500 pounds of over-run. The cooling vat was elevated approximately two feet from the floor and supported by an understructure of four by four inch timber.

B. **Cooling Rolls**—The lard cooling rolls were purchased second hand from a meat packing plant. The circular cooling rolls were 49 inches in length and 18 inches in diameter,



LARD-TYPE HONEY COOLING ROLLS

supported by a heavy metal framework. The rolls were fitted inside the vat in such a manner that one to two inches of the lower portion of the rolls were immersed in the honey when the vat contained 6000 pounds. The rolls are revolved by a three horsepower electric motor directly connected to the four-inch drive gear having 14 teeth; the drive gear meshes with a 23-inch gear having 89 teeth, attached to the shaft of the right hand cooling roll. A similar gear on the left hand cooling roll meshes with that of the right hand roll, thus revolving the roll on the right clockwise and the one on the left anti-clockwise at a rate of 14 revolutions per minute. The refrigerated water is forced into the cooling rolls through a one and one-half inch intake pipe at the point "W" and leaves at the opposite end of the rolls, from where it flows back to the refrigerator system in the basement of the building. The water is circulated through the cooling rolls at the rate of 50 cubic feet per minute. The immersed revolving rolls pick up a thin film of honey which is removed by the knife-edge scraper and this cooled honey re-enters the mass of warm honey in the vat. The baffle board beneath the knife-edge scraper partially separates the cooled honey from the main mass of heated honey in the vat.

C. **Agitators**—Seven agitator blades on a shaft, at a pitch of 15 degrees, revolving at the rate of 14 revolutions per minute in the vat, located outside of the baffle boards, mix the cooled honey with the remainder of the honey in the vat. The agitators are revolved by a chain drive from a 12½ inch gear having 23 teeth attached to the shaft of the left hand roll, and a similar sized gear on the left hand agitator. Gears 9½ inches, having 16 teeth, connected by a chain drive, revolve the right hand agitator.

Rate of Heating and Cooling.

The partly liquefied honey coming from the warming ovens flows into a 6000-pound covered vat, and enters the pasteurizing or honey heating kettle at 85° F. The steam heated double jacketed kettle, equipped with agitator paddles and temperature control unit, and having a carrying capacity of slightly more than 6000 pounds of honey, gave the following average temperature readings at 15 minute intervals:

9:00 a. m.— 85 degrees F.
9:15 a. m.—100 degrees F.
9:30 a. m.—114 degrees F.
9:45 a. m.—128 degrees F.
10:00 a. m.—142 degrees F.
10:03 a. m.—145 degrees F.

The plotting of these temperature readings shows a relatively straight line. The heated honey is forced from the heating kettle by compressed air, and the 6000 pounds pass through the O.A.C. honey strainer in approximately 20 minutes, flowing by gravity into the cooling vat.

The following average cooling temperature readings, at half-hour intervals, were obtained:

9:00 a.m.—145 degrees F.
9:30 a.m.—124 degrees F.
10:00 a.m.—112 degrees F.
10:30 a.m.—105 degrees F.
11:00 a. m.—100 degrees F.
11:30 a. m.— 94 degrees F.
12:00 a. m.— 90 degrees F.
12:30 p. m — 86 degrees F.
1.00 p. m.— 81 degrees F.

The plotting of these temperature readings shows a very rapid reduction in temperature for the first hour period of 33 degrees, thus cooling the entire 6000-pound batch of honey below the point where the flavor or color might be affected by being kept at a prolonged high temperature. The cooling temperature curve gradually flattens out and in four hours the honey has been cooled to a point where it can be seeded according to the Dr. Dyce process with safety. The process of seeding the honey is also done in the cooling vat, the agitators thoroughly mixing the seed with the cooled honey. After the seed has been thoroughly mixed the seeded honey is allowed to flow to one of two 6000-pound pailing vats.

Discussion.

The only difficulty encountered by this rapid system of cooling was the incorporation of air bubbles during the cooling and seeding processes, which necessitated a settling period of twelve hours in the pailing vats before the greater part of the foam could be skimmed from the honey to prevent undue foam formation in the pailed honey. However, a reduction in the speed of the cooling rolls may eliminate this difficulty and experiments in this regard will be instituted in the near future.

The Flight Activities of the Honeybee

In a Total Eclipse of the Sun

By Dr. A. E. Lundie
Research Apiculturist, Dept. of Agric., Pretoria, S. A.

From The S. A. Bee Journal, Dec., 1940.

The writer had the good fortune to be with Mr. W. Aird at his apiary at Balgownie, Cradock, C. P., during the total eclipse of the sun on the afternoon of October 1, 1940. With the experience gained in the flight activities study made in Washington in 1922 and reported in U. S. Dept. Agr. Bulletin No. 1328, May 1925, it was anticipated that the reaction of the bees to the total eclipse would be very similar to their response to a storm recorded by the counting instruments and illustrated graphically in Fig. 4 and Fig. 11 of that publication. Here the darkening of the sky due to a short thunderstorm about a mile away from the hive caused all the field bees to rush home to be followed almost immediately by an equally great exodus of bees from the hive as the light intensity increased again after the storm; normal flight being resumed within half an hour. On this day, one in the main honey flow period at Washington, the hive weight increased by some two pounds.

The hive under observation at Cradock was one which Mr. Aird keeps under a thicket of Mimosa trees. The sun was at the back of the hive and the sky quite cloudless. It was very interesting to witness the great homeward rush of the field bees, which commenced as soon as the light intensity diminished, with the moon only about one quarter to a third over the sun, and continued through the few minutes of totality and for at least the full hour the hive was under observation after the eclipse. Only an occasional bee went to the field after the light intensity became normal again. Although some two hours of good working time were still available to the bees from the time of the eclipse till dusk, there was no great exodus of field bees from the hive or resumption of normal flight activities such as was recorded by the counting instruments after the storm at Washington. The failure of the bees to resume their flight activities after the eclipse was probably due more to the relatively poor honey flow conditions prevailing, than to the period of the day, or the lower temperatures which the eclipse produced.

Ratio of Bees in the Field

The long period (at least one hour and twenty minutes of observation) over which bees continued to arrive at the hive indicated that a very large proportion of the field force was away from home, when the eclipse stimulated the return of these bees to their hive. There is always a direct ratio between the number of bees in the field and the time these bees spend on their foraging trips. The longer the bees take to load up in the field the larger will be the proportion of the total field force away from the hive at any particular time, or in a heavy honey flow, when the bees are loading up quickly and spending little time in the field, there is relatively a much smaller proportion of the total field force actually away from the hive.

Popularly it is believed that when there is a good flow there will be a larger proportion of the field force away from the hive gathering the nectar while it is abundant in the flowers than there would be during a dearth of nectar, but the reverse is the true state of affairs. In a heavy honey flow the bee traffic certainly moves faster, but there are more mobile or field bees "parked" in the city streets discharging their loads in the "skyscraper" combs of the metropolis than there would be in a dearth, when most of the field bees are outside of the walls of the city, and "the traffic control officer" has a bigger problem to relieve congestion on the "streets" produced simply by an abundance of nectar in the field and quite apart from its storage within the hive.

Had there been a heavy honey flow at Cradock on the day of the eclipse all the field bees would have arrived home within a few minutes and rushed out again as soon as the light intensity increased to normal after the total eclipse was over.

An "Endless Chain"

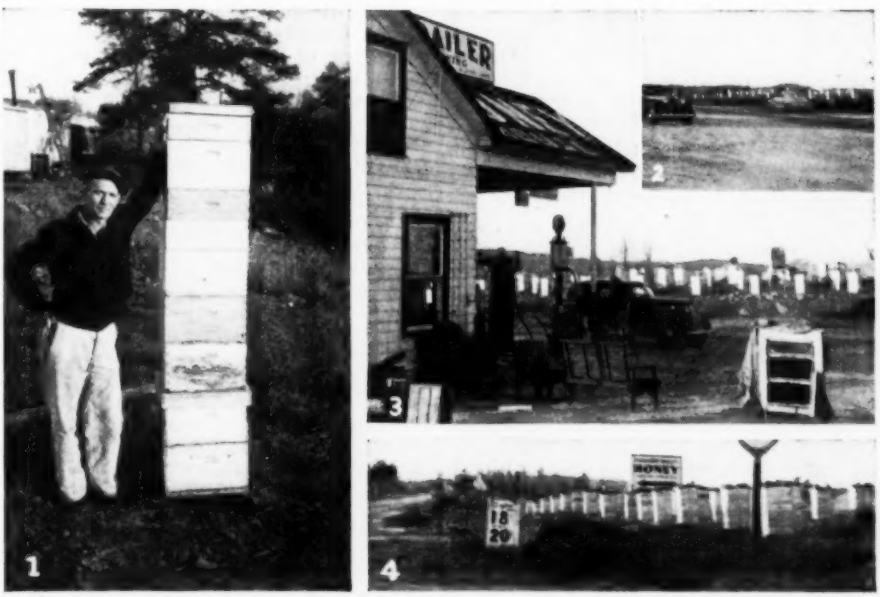
If we liken the total field force to an endless bicycle chain and the bees to the links on the chain travelling in and out of the hive, and we assume that the honey flow conditions are such that the bees are spending as much time on their foraging trips as they spend in the hive between these field trips, then half of our "bicycle chain" would be outside the hive and half of it would be within the hive.

In a heavy honey flow where the bees spend a very short time in the field there will be a longer piece of our "bicycle chain" within the hive than there is outside the hive, but each "link" is travelling faster than in the dearth period. On the other hand, in the dearth or poor honey flow condition more of our "chain" is outside the hive than within it. We might say that the effect of the eclipse of the sun was to cut the "chain" so that we got some idea of the length of the portion of this "chain" outside of the hive from the long period over which many bees continued to arrive at the hive.

What has all this theory to do with practical beekeeping? Simply this. In a heavy honey flow the larger section of the "bicycle chain" within the hive may bring about a crowded or congested condition, which tends in itself to cause swarming, if the beekeeper has not provided sufficient space for this "chain" to move in, while part of the same space is being lessened by the storage of honey, and so we have drifted from a total eclipse of the sun to swarm control.

This direct relationship between the honey flow and the portion of the field force within the hive and the congestion it may cause has not received the attention of writers on swarm control which it deserves.

Honey and Gas



1—F. H. Dennington, Marietta, Ga. Empty hive bodies piled high to attract attention.
2-4—Dennington's phony apiary opposite his honey and gas station. It would not be wise or safe to have so many hives close to the roadside full of bees. As the honey flow approaches these empties come in handy for use of outyards not here shown.
3—Mr. Dennington's honey and gas station just out of Marietta, Ga. Note three-story observatory hive on the right.—E. R. Root.

Beekeeping in Colombia, S. A.

By G. K. Christian

Honey shed at the Seminary.

In the region of North Santander, Colombia, one will encounter a great many contrasts in climate and conditions, due largely to the topography of the country. Cúcuta, the capital, situated among the foothills of the Andes, about three miles from the Venezuelan border, is a modern city with broad avenues, beautiful parks, and fine churches, and shops where most anything from a fountain pen to an electric refrigerator may be purchased, while in the jungles of the Catatumbo, a few miles away, the Motilone Indians roam as untamed as they were when Columbus first landed. The only contact these Indians have with civilization is when they shoot an arrow from ambush at some unsuspecting workman. There are semi-arid lands where cactus and other plants of the desert thrive and there are jungles where the rainfall is 143 inches per year.

In the arid lands, goats are the only animals that seem to be able to thrive, while in the fertile valleys among the mountains, milk cows graze as contentedly as if they were in the green pastures of New York State or Wisconsin.

Taking a bus from Cúcuta, which has an elevation of about 1000 feet, we proceed up the Pamplonita Valley. At first we pass irrigated fields of sugar cane or platinos, alternated with patches of arid country, but as we climb the valley, following the Pamplonita River, eucalyptus trees, willows and various plants of the temperate zone appear.

The Pamplonita Valley is scenic in every sense of the word. There are different flowers for every month of the year. At one time red will predominate, at another time yellow, and at other seasons purple will be the prevailing color among the flowers. There are cliffs and canyons and stratified rocks where the strata are much more vertical than horizontal. There are fields of corn on some of the steep hillsides, and cows may be seen grazing in places which appear accessible only to goats. The road has many twists and turns, and at times when the bus is proceeding along the edge of some canyon, you wonder if you would not be safer in an airplane.

Pamplona, which has an elevation of about 7500 feet, is about 45 miles from Cúcuta. It is situated in what appears to be the bed of an ancient lake and is surrounded by mountains at least 1000 feet higher. Many beautiful valleys radiate from Pamplona and extend between the mountains like the points of a star, and the small streams which follow these valleys are lined with willows, eucalyptus, and other trees.

Because of its elevation, the temperature of Pamplona is very cool and a top coat is very comfortable at night or on cloudy days. However, in spite of the cool climate, roses may be seen in the park every month of the year and on the lawn of the park I saw the familiar sight of Italian bees working on white clover.

I learned that they had Italian bees at the Seminary Consular and upon visiting the Seminary I met Brother Constantino, who, with Father Tobon, kindly showed me around the apiary. As yet, on account of the great number of black bees in the surrounding country, it is difficult to breed pure Italian bees in Pamplona, but all of the queens and drones which I saw and most of the workers were pure Italians. The frames of the hives were crosswise and not longitudinal like those of the ordinary Langstroth

hive. Also the hives were arranged on shelves in a shed or honey house, which I believe is after the European method. However, the queen-rearing nuclei were distributed throughout the apiary after the American method. They have 80 colonies of bees at the home apiary and distributed throughout the nearby country and, while they do not raise queens commercially, they kindly consented to give me an Italian queen to introduce into a hive of black bees which I have at Cúcuta.

Brother Constantino said that in introducing a queen he first made the colony queenless, and after 10 days he simply put the new queen on the combs, smoking the hive a bit before and after making the transfer. In 10 years he had not lost a queen following this method. One time the bees balled the queen up but he was able to rescue her before it was too late. While I was there he introduced a queen in this manner.

Generally, the honey produced in the cool mountain region is superior to that of the warmer lowlands. After my visit to the apiary I was given some candied honey from a plant called *Romero Salvaje*, which has a yellow flower. This honey, gathered at an altitude of more than a mile, was certainly delicious. Honey gathered from coffee blossoms is also of superior quality, but the season for this variety of honey is rather short. Eucalyptus is another source of honey and there is a beautiful grove of eucalyptus trees on the grounds of the Seminary.

In the warmer climate of Cúcuta, ants as well as birds are formidable enemies of bees. However, the menace of the ants may be overcome by placing the hive on legs which are set in dishes containing crude oil. Water would undoubtedly serve the same purpose, but as water furnishes a breeding place for mosquitoes, it either has to be changed frequently or else crude oil sprinkled on top of it. The Sanitary Department in Cúcuta is very strict about such matters. In Pamplona bees are not troubled with ants or birds, but they have to contend with cold winds blowing down from the summits of the Andes.

At the Seminary there were many other things of interest. There were hives of stingless bees of which one kind greatly resembled mosquitoes in appearance and they were not as large as the New Jersey variety.

(Continued on page 600)

Eucalyptus trees on the grounds of the Seminary.

Top:—Brother Constantino, on left, holding a frame of bees, and Father Tobon on the right. Queen-rearing nuclei in the center. Bottom:—Brother Constantino with queen-rearing nuclei.

Some Experiments in Apiculture

By C. B. Gooderham
Dominion Apiarist, Ottawa, Canada

Taken from July, 1941, Western Canada Beekeeper

The Dominion Department of Agriculture established its first apiary for experimental work at Brandon, Manitoba, in 1889. Since then other apiaries have been established in various parts of Canada.

I do not intend to discuss all of the work done by the division since its inception, but would like to mention briefly a few of its later experiments.

The first bees brought to this continent were the black bees of Europe, but in 1855 the first Italians were imported and have since become the predominant bees of the continent.

Through breeding and selection strains of the Italian race have been produced particularly adapted to the American climate.

Of late years, however, considerable interest has been shown in other races, especially the Carniolans and Caucasians, and certain claims have been made for them which would indicate that under certain conditions these races are equal or even superior to the Italians.

A six year test between Carniolans and Italians was made at Ottawa in the same apiary and under the same conditions, and without going into details of the experiment it is sufficient to say that both races appeared to be equally hardy under Ottawa conditions. The Italians, however, showed less inclination towards swarming than did the Carniolans and also produced the highest average crop for all years.

COMPARISON OF CROPS
Averages for 4 Colonies

Year	Italians	Carniolans
1924	191.3	87.0
1925	225.0	206.3
1926	104.3	73.1
1927	181.9	73.1
1928	116.4	58.5
1929	215.9	199.4

In 1930 the Carniolans were replaced by Caucasians and this test was run for 8 years. Here again little or no difference in hardiness was detected and the same applies with regard to swarming. The Caucasians, however, were more gentle under manipulation.

COMPARISON OF CROPS
Averages for 4 Colonies

Year	Italians	Caucasians
1930	231.3	153.1
1931	281.3	227.8
1933	209.1	167.4
1934	288.4	226.0
1935	188.1	147.8
1936	200.4	219.1
1937	205.3	204.6

Of the eight years, the Italians led in production for six of them, equalled in one, and dropped behind slightly in one*.

It will be noted that the test was not made of the three races at one time, but this is now being done at Brandon.

Supersedure of Queens

The supersedure of queens in package bees is a problem in which most of you are interested. It may be true that the difficulty has been largely overcome through the importation of surplus queens, but this costs money and sometimes sufficient delay to cause a reduction of crop.

We of course can only tackle the problem from the receiver's end and try to determine whether or not the trouble could be reduced by changing methods of installation.

At Ottawa we tried only one method of installation, but the queens were shipped to us in three different ways (1) in regular cages and accompanied by attendants. (2) In dry cages without attendants and (3) by mail separate from the package.

Over a period of eleven years 154 packages were installed. Of the 154 queens, 1 died in transit (by mail) 3 were drone producers, (one in each method), 1 produced brood that was never capped, (dry cage), 2 were destroyed because of poor quality, (dry cage) and 8 were superseded. Our losses through supersedure were only 5%, but this was almost equaled from other causes. 13.3% occurred among attended queens, 5.2% from dry cages and 4% among those coming through the mails. No supersedure occurred during seven of the eleven years.

The project is also underway at

*Apparently the record for one year was omitted.

Brandon and here some 10 methods are being tried. So far the percentage of queens lost and superseded is much higher than at Ottawa and while there is a variation in losses from the different methods nothing very definite has yet been shown.

The two-queen system was originally designed as a production measure, but under Ottawa conditions proved of little or no value as such. It has, however, proved to be a good method of wintering over a surplus of queens for emergency use in the spring, so much so that it is now part of our routine each year.

In the fall of 1935 the project was changed in an attempt to winter three and four queens in each hive. The results so far are as follows:

HIVES WITH 3 NUCLEI

Winter of	No. Queens in Fall	Living Queens in Spring
1935-36	9	8
1936-37	9	7
1937-38	9	8
1938-39	9	9
1939-40	9	5
Totals	45	37=82.2%

HIVES WITH 4 NUCLEI

Winter of	No. Queens in Fall	Living Queens in Spring
1935-36	12	8
1936-37	12	10
1937-38	12	8
1938-39	12	10
1939-40	12	11
Totals	60	47=78.3%

In the case of the hives containing 3 nuclei the loss of queens was never more than 2 in any one year except in 1939-40 when 4 were lost and only in one instance were 2 queens lost in the one hive. During the five years only 8 were lost, therefore, 22 surplus queens were wintered.

The loss was slightly heavier in the hives containing four nuclei where 13 out of 60 were lost, but owing to the larger number of nuclei 32 spare queens were available in the spring.

In no case were all four queens lost in the one hive, in one instance 3 died and on two occasions 2 were lost. In six of the hives all four queens survived.

Because of the usually long and severe winter the problem of wintering bees in Canada is an important one. A large number of colonies die and many more are seriously weakened through want of proper preparation in the fall.

We all know that the three main necessities for safe wintering are:

(1) Strong colonies of young bees.

(2) A liberal supply of wholesome food, and,

(3) Adequate protection.

I know that many beekeepers have solved this problem to their own satisfaction by destroying their bees in the fall and importing packages the following spring. Many, however, question the economy of such a policy.

All are agreed regarding the first two essentials mentioned above, but all do not agree as to kind and amount of protection needed.

There is no doubt that taking everything into consideration a good cellar is the safest place to winter bees in most parts of Canada for all winters are alike to bees in a well insulated cellar. Unfortunately, however, many cellars now used are unfit for that purpose.

Outdoor wintering, however, is the main problem and it must be confessed that so far we do not know all we should about it. For that reason an experiment was set up last fall at Ottawa in which 81 colonies were wintered outside in 5 groups. The groups consisted of colonies in quadruple cases, double cases, permanently packed hives, tar paper pack, and paper wrapped. Where extra insulation was provided it consisted of cut straw. In each group there were colonies with top entrance, bottom entrances and a combination of the two.

In this connection a special hive was constructed in which a hydrometer was suspended so that readings could be taken at any time without disturbing the colony. It may surprise you to know that the temperature in this hive dropped as low as 28 degrees F. and was below freezing on five occasions.

Many of you have generously contributed to honey experiments by sending us samples of your honey for the past several years. The main objects of these experiments were:

(1) To ascertain the optimum temperature for the storage of honey.

(2) The relationship between moisture content, yeast count and keeping qualities.

In the first, all honey that was placed in controlled temperatures of 40 and 50 degrees F. is still good, although some of it has been in storage since 1928. All honey stored at

(Continued on page 599)

Fall Fancies

By Mrs. Benj. Nielsen

The long, hot summer is nearly over. We have had our vacation trips (and have come home to really rest—the irony of it!) and now supposedly full of vim and vigor, we are supposed to be ready to withstand the rigors of an all-too-long and tedious winter. The bees, bless them! have toiled early and late in our absence—no time out for vacations for them! And a good thing for us that is; for the onslaught on the old honey jar will be long and hard.

In many homes, the honey jar will now come down from the top shelf, after a summer's hibernation. Despite the earnest and untiring efforts of many honey boosters, far too many folks still have the habit of considering honey a cold weather article of diet. We **are** making progress in converting folks to the use of honey during the summer months; increased volume of sales over a similar period last summer bears out this statement. It would seem that the answer to the problem of making more and more converts is to continue to work out more and better recipes for the summer season, and work unremittingly to see that these recipes are tried by these folks with an over-supply of sales resistance. Work out recipes so good folks can't resist them and then sieze every opportunity to serve the honey goodies made from these outstanding recipes.

There will be not a few days yet this month when the best of your summer time honey recipes may be used to advantage on these people with "I-don't-care-for-honey-in-the-summertime" ideas. Sandwiched in between these too-hot days will be snappy days with real zip in the air; appetites will perk up considerably. Then I hope you will try out some, or all, of these offerings that are supposed to please the fancies of fall appetites, and pass those you like along to keep up the good work for Nature's unexcelled sweet.

Wouldn't this luscious honey flavored ham slice be just the thing for supper some rainy, cold day? Just add a green salad, a simple dessert and some piping hot biscuits with plenty of honey, or perhaps some honey muffins. Remember those scrumptious honey banana bran muffins in the April, 1941, issue of Gleanings? With such a meal it will not bother you one whit to have company drop in.

Honeyed Ham Slice

One large slice smoked ham, 6 sweet potatoes, boiled in their jackets and peeled and sliced, 6 slices pineapple, ½ cup butter, ¾ cup unsweetened pineapple juice, and ½ cup honey.

Place the ham in a baking dish, add the sweet potato slices and top with the pineapple rings. Melt the butter and to it add the pineapple juice and the honey. Mix well and pour over all. Bake in a moderate oven, 350 degrees F., for about 1 hour.

And here is a quick fruited coffee cake delicious to serve with honey-sweetened coffee for afternoon parties or bridge luncheons. Indeed, the ingredients needed are the kind almost sure to be at hand on the cupboard shelves 'most any time; so simple and easy to make that it's no trick at all to whisk it together when a friend drops in some afternoon. Served hot the aroma and flavor are irresistable, no matter how closely you have resolved to watch those calories!

Quick Honey Coffee Cake

Three cups sifted flour, 4 teaspoons baking powder, 1 teaspoon salt, ¼ cup butter, or shortening, ½ cup honey, 1 cup milk, ½ cup seedless raisins, 1 egg, unbeaten, 1 tablespoon honey (additional), 1 tablespoon brown sugar, and butter.

Sift the flour; measure; resift with baking powder and salt. Work in the butter. Add the honey to the milk, stirring until well mixed. Add the raisins and the unbeaten egg to the first mixture, and half of the milk at one time. Stir to form a soft dough. Then place in a well-greased pan, about 8½ inches square. Spread on top a layer of sliced apples, peaches, apricots, or any fruit desired. Combine the additional tablespoon of honey with the brown sugar; mix well and drizzle lightly over the fruit. Dot generously with butter. Bake in a moderate oven, 375 degrees F., about 25 minutes.

Not quite so easy to make—a bit tricky and exacting in the handling is this light and flavorsome dessert—but decidedly worth while. Festive

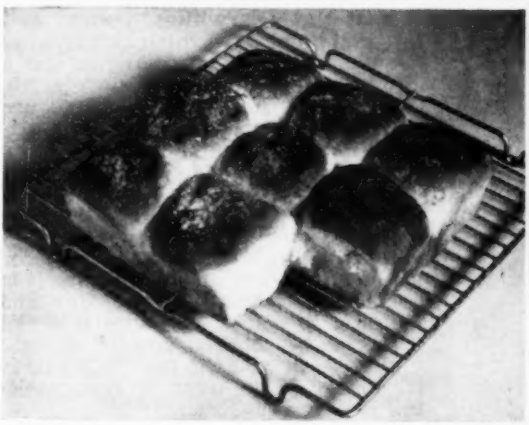
enough for guests and the family won't mind it either.

Honey Buns

One package Maca granulated yeast, ⅔ cup milk, scalded and cooled, ⅔ cup lukewarm water, 1 tablespoon honey, 2½ cups sifted flour, 3 tablespoons softened butter, 1 teaspoon salt, 3 egg yolks, ¼ cup honey, 3 egg whites, and 1⅔ cups sifted flour.

Fruit inside and atop of this luscious-tasting quick honey coffee cake.

Sprinkle the yeast in the milk and water placed in a bowl. When softened add 1 tablespoon of honey. Mix well and stir in 2½ cups of flour which has been sifted before measuring. Beat the mixture until smooth. Let rise in a warm place until light. Then add the softened butter, salt, unbeaten egg yolks and honey. Mix well. Fold in the egg whites beaten until stiff. Sift, measure, and add 1⅔ cups of flour. Mix smooth. Cover bowl and let stand in a warm place until very light. Turn out on a well-floured board. The dough will be very soft but do **not** add more flour.



Honey-butter-and-egg buns are light as a feather and oh! so good.

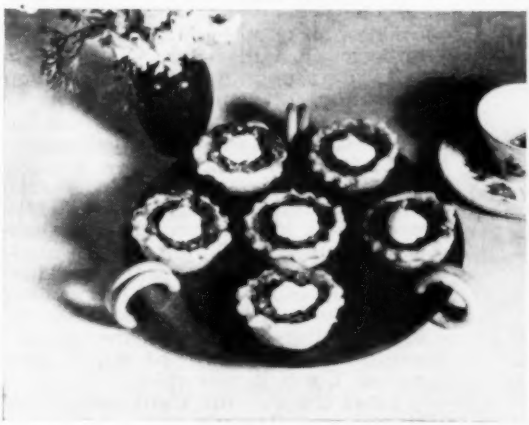
Sprinkle lightly with flour and pat out to ½ inch thickness. Dip the cutter in melted butter, cut and place circles in well-greased deep pans. Brush tops tightly with egg or milk, sprinkle with sugar and cinnamon. Let stand until very light. Bake in a moderate oven, 375 degrees F., 25 to 35 minutes. Makes 2 dozen.

Don't those honey tarts look good enough to eat?

Honey Pecan Tarts

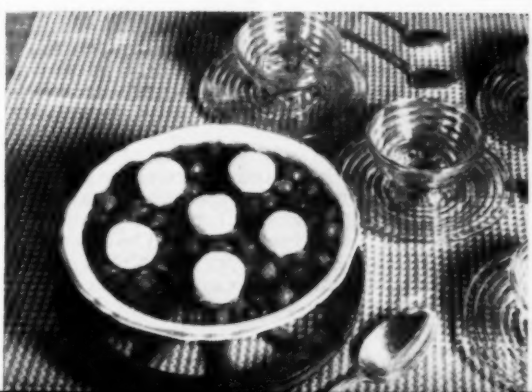
Plain pastry for 6 tart shells, ¼ cup brown sugar, 3 eggs unbeaten, ½ cup honey, juice of one lemon, and 1 cup of pecan nutmeats, sliced.

Roll the pastry thin and form into



Don't these honey pecan nut tarts look good?

muffin pans. Cream the butter and brown sugar together. Add the unbeaten eggs, honey, and lemon juice. Beat with a rotary beater until thoroughly mixed. Add the nutmeats. Pour into tart shells. Bake in a hot oven, 400 degrees F., for 10 minutes, then decrease the heat to a moderate oven, 350 degrees F., and bake about 20 minutes longer, or until firm. Do



Spicy deep-dish honey cherry tapioca is sure to call for seconds.

XUM

not over-cook as the filling thickens upon cooling. Serve with whipped cream to which chopped candied orange peel has been added, or with honey-sweetened whipped cream, if preferred.

Honey Apricot Souffle

Three egg whites, ½ cup honey, ¼ teaspoon salt, 1 tablespoon lemon juice, and ½ cup cooked apricots, chopped fine. Sunsweet "Tenderized" apricots are ideal for this recipe.

Beat the egg whites, honey, and salt in a bowl until thick and creamy —which takes lots of patience and a strong arm. If you have an electric beater, fine! Here's the place to use it. Then add the lemon juice and apricots. Place in the upper part of a double boiler which has been well buttered. Cover tightly and cook slowly for 40 minutes. Keep the cover tightly in place—no peeking—while cooking. Replace the hot water in the lower part of the boiler as it is needed. Then carefully transfer this pudding to dishes and with it serve a thoroughly chilled custard sauce.

Here's one you can peek at while it is cooking in the oven. In fact, peeking is necessary.

Deep Dish Honey Cherry Tapioca

One-half cup honey, ½ cup Minute tapioca (granulated), ¼ teaspoon salt, ¼ teaspoon nutmeg, ½ teaspoon cinnamon, 1½ cups cherry juice, ¼ cup orange juice, 1½ cups seeded cherries, ½ teaspoon grated lemon rind, and marshmallows.

Combine honey, tapioca, salt, spices, juices, cherries, and rind. Mix well. Place in a buttered baking dish. Cover and bake 30 minutes in a moderate oven, stirring several times during this cooking period. Then uncover, dot with marshmallows and return to the oven until the marshmallows are well browned and puffed. Serve hot or cold.

Start the day off right with these crunchy wholesome

Honey Grapenuts

One cup sugar, 1 teaspoon salt, 2 teaspoons baking powder, 2 teaspoons soda, 7 cups graham or whole wheat flour, 1 cup honey, and 2 cups sweet or sour milk.

Sift the dry ingredients together. Add to flour and mix well to distribute evenly. Combine honey and milk, stirring until well mixed. Then add to the dry ingredients. The resulting batter will be very thick. Spread in well-greased pans and bake in a moderate oven until well done. Let cool. Crumble fine and spread thinly on trays. Place in oven and toast slowly, stirring frequently to prevent burning. The mixture should emerge crisp and crunchy. Now you can use the rolling pin or your food chopper to reduce these rich brown morsels to the desired fineness. We like ours run through the food chopper. In appearance you cannot distinguish these nutty nuggets from the commercial grapenuts and the flavor is delightful. Do try them soon. Oh yes, you should have 4 quarts when you have finished the grinding—but they won't last long. At least, they never do at our house.

Honey Cream Pie

Three-fourths cup honey, ½ cup sifted flour, 2 egg yolks, well beaten, 2 cups milk, ½ teaspoon vanilla, 1 cup chopped walnut meats, 2 egg whites, and 4 tablespoons of honey.

Mix the honey and flour in the top part of a double-boiler until thoroughly blended. Add the beaten egg yolks and the milk, mixing well. Cook until the mixture starts to thicken, stirring frequently, then add the chopped nuts. Continue cooking until floury taste is gone. Remove from fire, add the vanilla. Pour into a baked pie shell. Beat egg white until stiff, then gradually beat in the honey. Swirl on top of the filling and slip the pie into a slow oven until the meringue is nicely browned.

Honey Cottage Cheese Pie

Two and ½ teaspoons cornstarch, ½ cup cream, 1 cup well drained cottage cheese, 2 egg yolks, ½ cup honey, 1 tablespoon melted butter, 2 teaspoons lemon juice, ½ teaspoon grated lemon rind, ¼ teaspoon cinnamon, and 2 egg whites.

Moisten the cornstarch with the cream. Run the cottage cheese through a fine sieve. Be sure it is very well drained before measuring. Beat the egg yolks until thick and lemon colored. Then beat the honey in gradually. Add the sieved cheese, moistened cornstarch, melted butter, lemon juice, grated rind, and cinnamon. Mix well. Then fold in the stiffly beaten egg whites. Pour into a 9-inch unbaked pastry shell. Bake in a hot oven, 450 degrees F., for 10 minutes; then reduce the heat to a moderate oven, 350 degrees F., and continue baking until the mixture is set, about 20 to 25 minutes. Just before serving dust the top with powdered sugar and a dash of cinnamon.

Aurora, Nebraska.

Testimony at Public Hearing on Proposed Food and Drug Administration Standards of Identity for "Honey Bread" and "Milk and Honey Bread"

[The following brief was presented by R. B. Willson of the John G. Paton Co., N. Y., at the hearing on August 1, covering the proposed minimum requirement of honey in a bread bearing a label of Honey Bread. As the John G. Paton Co. are large buyers and shippers of honey the statements of their representative carry more than ordinary interest aside from the question of how little honey may be permitted in a honey bread. Indirectly the American Honey Institute, through its representative, took no small part at the hearing on August 1. For further particulars, see Editorial in this issue, page 577.—Editor.]

(Hearings held Aug. 1, 1941)

NAME: Robert B. Willson
ADDRESS: The John G. Paton Company, Inc., 630 Fifth Ave., New York City
REPRESENT: American Honey Institute
TRAINING and EXPERIENCE:
1917 B. S. Cornell University
1919-1922 Specialist in Bee Culture at Miss. State College, U. S. Department of Agriculture cooperating.
1922-1926 Extension specialist in Apiculture, Cornell University.
1926-1941 Continuously engaged in buying and selling honey, and promoting its sale in the United States, and until last year in Europe also. Fourteen years with The John G. Paton Comny, Inc., of which I am now Vice-President.

I appear here as a member of a Committee to represent The American Honey Institute, having been appointed by the Chairman of its Board of Directors, Mr. Lewis W. Parks.

The Committee consists of:

Mr. E. R. Root, Chairman of the Board, The A. I. Root Co., Medina, Ohio. Editor, "Gleanings in Bee Culture".

Mr. G. P. Walton, U. S. Bureau of Agr. Chem. and Eng., U.S.D.A., Washington, D. C.

Mr. Harold J. Clay, Marketing Service, U.S.D.A., Washington, D. C.

Mr. R. B. Willson, Chairman.

The American Honey Institute is a thoroughly representative organization of the honey industry and the only one whose membership is made up of honey producers, their associations, honey dealers, honey packers, and manufacturers of beekeepers' supplies.

Direct Testimony of Mr. Willson at the Hearing Aug. 1:

Whereas there are no official reports of the annual production of honey in the United States, there have been some careful studies made which lead to the conclusion that from 170 to 200 million pounds are produced each year, including approximately one and one-half million pounds of honey that come to the continental United States annually from our island possessions of Puerto Rico and Hawaii.

This crop of honey is produced in every State in the Union, much more in some than others, and by beekeepers with from one to over a thousand colonies. Possibly almost half of it is produced by those for whom honey production is only an avocation or a partial contributor to their income.

For the most part, the production of the small producer is sold and consumed locally or at nearby points. The other half of the honey crop, produced by operators of a large number of colonies, in carload or truckload quantities, is usually sold to dealers or bottlers or large consuming converters like confectioners and bakers. This is the honey of commerce with which we here are primarily concerned.

The experience of my firm with the honey of commerce is extensive because we handle more honey, bulk and packed, than any house in America and we believe in the world. A wide variety of uses is covered by the honey we sell.

One characteristic of this honey of commerce is its wide variation in flavor, color, and body, and this lack of uniformity extends to within any one variety such as clover honey, which constitutes* more than one-half of the entire American honey crop. This wide variation in quality constitutes a factor which bears directly on the subject as we shall point out.

The variation incidentally includes a marked difference in the concentration of the enzymes diastase and invertase. We learned of the variation in diastase after my firm had a rejection of a large shipment of American Clover Honey in Hamburg, Germany, because of a weak Fiske reaction whereas subsequent studies by the U. S. Department of Agriculture showed the presence or almost

*Economic Aspects of Bee Industry, by Voorhies, Todd & Galbraith. Published by the University of California, Berkeley, Calif., Sept. 1936.

total absence of diastase in unheated honey, a perfectly normal characteristic of our American product.

I did some research work myself on invertase with some of the most important varieties of honey and found the concentration of this enzyme was variable but the variation not so wide as in the case of diastase. These variations in enzymes, I am told, are important in the bread making process of fermentation.

I should like here to refer to that excellent and most complete piece of research work on the marketing of honey in the U. S. done by Prof. N. P. Rasmussen, of Cornell University, whose findings were published in January 1932 in Cornell Extension Bulletin No. 221, entitled "Some Facts Concerning the Production and Marketing of Honey". Mark the year, 1932. I quote from page 33 of that bulletin:

"On interviewing buyers for six of the outstanding baking companies in the eastern United States, it was learned that these firms had not used an ounce of honey during recent years."

There were reasons why these bakers and many others in the U. S. were not using honey. It was not uniform and it was difficult to handle. Sometimes it was well strained, other times it was not. Sometimes it even contained dead bees. At times it was liquid; more often it came to the baker solidly crystallized. In his flour, sugar, raisins, shortening, he had reasonable uniformity and ease of handling, but not in honey, so why use it?

About that time a contribution was made to the baking industry by a prominent miller of flour which has completely changed the importance of the baking industry to the marketing of honey. Cracked wheat was introduced and the formulas for its use called for honey! The acceptance of the public was immediate, for honey accentuated the nutty sweetness of the cracked wheat berry and gave a loaf of fine flavor, texture, aroma, color, and good keeping qualities. Furthermore it had been enriched in food value by having been made with honey.

The same objections to the use of honey were there, of course, at the introduction of this flour, but bakers were now genuinely interested in honey from many angles. For some we created special blends for special flavors, but for all we prepared uniform quality honey by putting it through our large thermostatically controlled glass-lined tanks, thoroughly liquefying and blending it, and straining it through filters of a very fine texture, thereby turning out a product that made for ease of handling in the bakery.

Others in the honey business, of course, had the same problems as did we, and each worked them out in his own way. In any case in the brief span of a few years the honey industry had succeeded in servicing the American baker with honey that he liked; the baker in turn learned its use and began using it in many other formulas other than cracked wheat bread. There followed Honey Crushed Bread, the Honey Loaf, and Milk and Honey Bread, and almost endless varieties of bread and other baked goods made with and featuring in their names the great natural sweet—honey.

Whereas honey less than ten years ago had a relatively unimportant volume of sales to bakers, today it is sold to them in enormous quantities. I mentioned my firm's position in the honey business; 30% of our volume is sold to bakers and of that 30% half goes into bread that features in one way or another on its label that it is made with honey.

Notwithstanding this situation, from time to time during this period and in fact right up to date, it has been brought to our attention by bakers everywhere that the cost of honey was an important consideration with the baker, because of the extremely competitive conditions they face, and the statement has been made that should the cost of honey become too far out of proportion they would be forced, no matter how regretfully, to discontinue its use. After the last war* because of the high price of honey many bakers discontinued the item entirely and it took many years to reinstate its general use in the industry.

This figure of thirty percent of our honey being used by bakers is the one given me also for the entire country by Mrs. Harriett M. Grace, Executive Secretary of the American Honey Institute. If half of approximately 30% of the commercial honey crop is used in honey breads, the other half is of no less importance to the American honey producer. In this connection we are glad to see honey (No. 17.500-(a)(5) among the

*N. P. Rasmussen ibid P. 36

permissable sugars that may be used in any bread. A very large volume of honey is so used in America today in bread that is not called honey bread and to authorize its continued use is a mighty safeguard to the marketing of the honey crop.

The use of this vast quantity of honey by bakers is important to the American honey producer, especially now. Up to 1929 Germany was our first customer for honey, but in that year Germany placed a prohibitive tariff on honey that has since shut out American honey from that market. In 1932 Italy* was our best customer, but since then Italy has bought steadily less until eventually her war economy and finally the war itself closed that market. Our other important customers, such as Holland, Belgium, and the Scandinavian countries cannot get our honey because of the blockade, and Great Britain, recently our best customer, has banned imports of honey except from her Empire. Ten percent of our honey crop of commerce used to be exported, and now we export nothing but inconsequential quantities. The point here is that as we were losing our export market, the bakers were beginning to use it until now they have taken up the slack and more.

Naturally all of us in the honey industry, from the most remote beekeeper, or the small manufacturer of tin cans into which honey is packed, or the large manufacturer of bee hives, or dealers in honey who are exporters like ourselves, all are most grateful to the baking industry. We treasure the strong position we hold today in baking and strive only to strengthen it.

Before making my concluding statements which will include my recommendations, I should like to point out that the disposal of the American honey crop is not easy. Its marketing is the honey producers' greatest problem. Prices have been greatly depressed for many years and its sale still drags. The best proof of this is that in order to relieve the honey market, it was only in June of this year that the Surplus Marketing Administration sent out bids to honey producers and their associations in the ten States comprising the intermountain region and Arizona, California, Oregon, and Washington, for seven million pounds of honey. It is obvious therefore that we need to do everything we can to encourage still more and wherever we can the use of honey.

Specifically in regard to the proposed standards for honey bread, rolls, etc., and milk and honey bread, rolls, etc., first I should like to make an observation. The purpose of a sugar in bread, be it cane sugar, honey, or any other sweet, is to provide food for the yeast and to have enough sweetening to make the bread palatable. A pronounced honey flavor is neither necessary nor desirable. Here again we are bound to consider the variability in honey and to realize that very small percentages of certain honeys would give the pronounced flavor of these honeys to bread, whereas double or more of certain other honeys would impart no flavor other than sweetness to the bread. To illustrate, three percent of buckwheat honey would give a distinct buckwheat flavor to any bread with which it was made, whereas 6% of fine white clover honey would impart no distinct honey flavor whatever.

Based on many carefully prepared recipes created by many well qualified people in the baking field, such as those attached published by the Pillsbury Flour Mills Company and those created by Dr. H. E. Barnard, former President of the American Institute of Baking and Malitta D. Fischer of the American Honey Institute, I recommend that a standard for honey breads, etc., and milk and honey breads, etc., be set at 4% honey solids minimum (approximately 5% honey liquid basis) and that honey be the sole sugar used. This figure is low but it is designed to permit the baker in those areas of the U. S. where dark honeys are produced to use honey of local production and thus relieve the market of it. At the same time this quantity of honey solids is sufficient to give to the bread the principal qualities of honey bread which are:—a delicious flavor, a fine texture brought about by vigorous fermentation, a rich brown color induced by the quick caramelization of the levulose of honey in the presence of heat, and longer fresh-keeping qualities than when made with other sugars.

In support of this recommendation I wish to submit in evidence two loaves of bread. The first is the cracked wheat loaf made by the S. B. Thomas Company of Long Island

*Voorhies, Todd and Galbraith. ibid P. 5

(Continued on page 598)

Edward S. Andrus, 92 years old, founder and first president of the Connecticut Beekeepers' Association. Mr. Claude L. Yates on the left.

The Founder of the Connecticut Beekeepers' Association Honored

By E. R. Root

A fiftieth anniversary was held on June 28, at Hartford, in honor of the veteran founder of the Connecticut Beekeepers' Association in the person of 92-year-old Edward Stevens Andrus. The picture of this patriarch in beekeeping, here presented, shows a remarkably strong face back of which is a mind as vigorous as in his younger days.

Resolutions were passed conferring life membership and the title "President Emeritus and Founder" of the Association on him.

Mr. Andrus, became interested in beekeeping through the discovery of a bee tree and this led up to the formation of the Association fifty years ago of which he became president.

The first thing on the program at this fiftieth celebration on June 28, at Goodwin Park, Hartford, was a discussion of how to get bees out of a bee tree or from the side of a house without mutilating the bee tree or house. To give life to the proceding a bee tree was imported and installed in the Park. Around this the crowd assembled. See Fig. 6.

Different forms of escapes were shown. Those that had the preference were in the form of a wire cloth cone. The large end was to be carefully nailed over the opening in the bee tree and the smaller end was to extend into the entrance of the hive installed in front of the log entrance.

It was agreed by all that the taking of bees from a tree was more of a sport or pastime than a profitable venture.

Bee trees are usually hollow from top to bottom and are therefore worthless for lumber. For that reason it is not difficult to get permission from the owner to cut the tree, thus making it easy to split open the portion occupied by the bees.

In the case of a house the bee-escape plan is the more feasible.

Later on talks were given by Allen Latham, Claude L. Yates, Fig. 3, the Commissioner of Agriculture, Olcott F. King, (Fig. 4), Secretary Rost, E. R. Root, and others.

Allen Latham, several times president of the Connecticut Beekeepers' Association, is known all over the U. S. A teacher of science for many years, he is now a queen breeder and his slogan is "not cheap or low prices but better quality in his product".

As a student in bee behavior Mr. Latham has few equals. One will see his name as an authority scattered all through the last edition of the A B C and X Y Z of Bee Culure. It does not disturb his equilibrium to disagree with the other fellow and sometimes he takes the other side to bring out the truth. The snapshot, Fig. 5, shows him accusing E. R. Root of "stealing a queen", the evidence of which was shown by numerous bees hovering around the pocket of the aforesaid editor.

At this meeting discussion centered around the loss of bees by poison dusts and sprays. As in other states in this country the poison menace to beekeeping has become much more acute since dust has been employed.

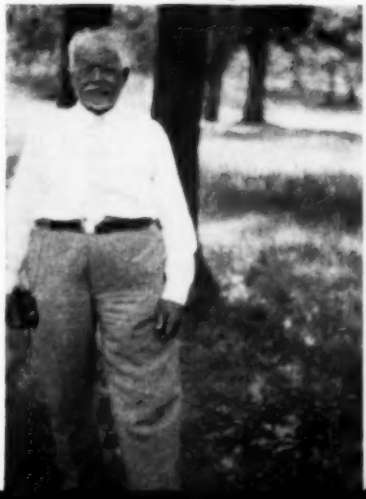
The Association since its founding has been a power for good in the years which have elapsed.

Among other of its activities its energetic Secretary, Chas. J. Rost, and its President, Claude L. Yates, have been conducting a free beekeepers' school, the information coming from veterans of the Association.

The latest project is "Enroll in Bee Defense". The Committee in charge is obtaining all available information in the hope of finding a repellent that will drive the bees away from the poison, or discovering a new poison that will save the bees and yet destroy the noxious insects.

Resolutions inviting every one to take part in a Round Table discussion of Ways and Means for preventing destruction of Honey Bees by poison, were unanimously adopted. President Claude L. Yates, Chairman of a committee consisting of Dr. Roger B. Friend, State Entomologist, and Past President Mark Bishop of the Connecticut Pomological Society, therefore proposed a non-belligerent congress of Fruit Growers, Insecticide manufacturers and Beekeepers to promote a constructive program of fact finding and relief.

Dr. H. W. Furniss, Director of C.B.A. for 12 years, (see Fig. 7) is both a beekeeper and a lover of the camera of the still and movie kind. His pictures will doubtless be shown at the 50th Anniversary Jubilee of the Connecticut Beekeepers' Association.



Just News

The Middlesex County Beekeepers' Association will meet at 2:30 P. M. on Saturday, September 20 at the residence of Mr. and Mrs. Ellis F. Colgate, Concord Road, Billerica, Mass. Hives will be opened. Prof. Arthur G. Hildreth will speak on Bee Repellents. The Ladies' Auxiliary will supply supper, featuring cold meats with salads, steamed corn, honey bread and rolls, honey apple pies and ice cream with coffee. This is our last outdoor meeting for this year.—A. M. Southwick, Pres.

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Program, Georgia State Beekeepers' Association, Homerville, Georgia, Headquarters, Community Hall, October 8-9:

Wednesday, October 8

9:00—Registration
10:30—Call to Order
Invocation—Rev. L. C. Harvard, Pastor Homerville Methodist Church
Welcome Address—Mayor G. C. Hughes
Response—A. J. Reamy, President
11:00—Address—Mrs. S. C. Patterson, County School Supt.
11:30—Bee Laws and Regulations—Ben T. Willoughby, County Rep.
12:00—Lunch
1:30—Appointment of Committees
Reading of Minutes and Report of Sec. and Treas.
Report of Finance Committee
2:00—J. H. Girardeau, State Entomologist
2:30—Beekeeping Education—Ned Prevost, Clemson College, S. C.
3:00—Supersedure and Introduction of Queens—John C. Hogg, Tifton
3:30—Apiary Management and Colony Preparation for the Honey Crop—W. B. Bradley, Fargo
3:45—Allan Eby
4:00—Round Table Discussion—J. G. Rossman in Charge
7:00—Supper and Entertainment—F. W. Jernigan in Charge
8:00—Motion Picture—"Georgia Beekeeping"—Bureau of Entomology

Thursday, October 9

9:00—A. D. Hiett, Lynchburg, Va.
9:30—R. E. Foster, Gainesville, Fla.
10:00—R. W. Sterrett, Atlanta, Ga.
10:15—Frank White, Atlanta, Ga.
10:30—Co-operative Packing and Marketing of Honey—Morley Pettit, Tifton
11:00—Package Shipping and Honey Production—G. G. Puett, Hahira
11:30—Early Beekeepers of Georgia—J. J. Wilder, Waycross
12:00—Report of Committees, Election of Officers, etc.
12:15—Lunch
1:15—Visitors
2:00—C. H. Bishop, Atlanta
2:30—Question Box
3:00—Installation of Officers

• • •

The Heart of American Beekeepers' Association will hold its next meeting at the home of Elmer Robinson, Richmond, Mo., Sunday, Sept. 7. This will be an all-day affair with a Fish Fry at noon. Three commercial beekeepers will talk on how to prepare your bees for winter.—Willie Groom, Secretary.

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The Southern Beekeepers' Conference in Lynchburg, Va., is to be held three days. Following is the program for the second day:

Wednesday morning, October 22, 1941

9:00—Express Transportation of Package Bees, D. V. Worsham, Atlanta, Ga.
9:15—Florida's Place in Southern Beekeeping, R. E. Foster, Gainesville, Fla.
9:30—Importance of League Meetings, Louis Hines, Sec. A. H. P. L., Omaha, Nebr.
9:45—North Carolina Honey Sales, Prof. F. B. Meacham, Asst. Prof. of Ent. Raleigh, N. C.
10:00—Beekeeping in Diversified Farming, Prof. David Dunavan, Clemson College, Clemson, S. C.
10:25—The Duties of a State Apiarist, Dr. Harry H. Laidlaw, Jr., Montgomery, Ala.
10:40—Entertainment
11:00—Should Southern Conference Publish a Credit List, Floor Discussion
11:15—Tennessee and Its Beekeepers, Robert W. Lane, Greenville, Tenn.
11:30—Further Discussion on Adoption of New Policies, Floor Discussion

Wednesday afternoon

1:30—The Many Uses of Honey, Mrs. R. W. House, Dunedin, Fla.
1:45—Why and How to Use Honey in the Home, Mrs. Harriett M. Grace, Director American Honey Institute, Madison, Wis.
2:15—The Relation of Natural Foods to Extension Efforts, Dr. Ernest E. Scholl, Extension Director, Stillwater, Okla.
2:45—Natural Foods in the Human Diet, Miss Janet Cameron, Nutrition Specialist, Blacksburg, Va.
3:15—How the Institute Steps Forward, Lewis W. Parks, President, G. B. Lewis Co., Watertown, Wis.
3:45—The Economic Uses of Honey, Harold J. Clay, U. S. Marketing Service, Washington, D. C.
4:00—Open
7:30—Banquet, Virginian Hotel, Ned Prevost, Toastmaster

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Announcement is made by the Michigan Honey Association, Inc., of changes made in its executive personnel which become effective immediately. The new officers are: M. S. Zia, president, Roscoe C. Springton, secretary, and William T. Harms, treasurer. These officers comprise the Board of Directors.

The National Meetings at Niagara Falls

The annual meetings of the American Honey Producers' League, the American Honey Institute, the National Beekeepers' Auxiliary, and the Apiary Inspectors of America will be held at Niagara Falls, New York and Ontario, November 12 to 14. At the same time meetings will be conducted by the Ontario Beekeepers' Association and the Empire State Honey Producers' Association, and there will be packed into the three days much of interest to all persons concerned with the problems of beekeeping. The location of these meetings adds much to this importance, for in addition to the Falls which everybody must see, there are points of historic, scenic, and other interest, making the location one not surpassed on the continent for such a gathering, and this applies equally to the two sides of the invisible boundary which unites the United States and Canada. This will be an international meeting of exceptional interest because of the world situation which we now face.

Program details are being worked out rapidly, and announcements of some of these details will soon be made. At this time it seems especially appropriate to suggest that both before and after the meetings, there will be opportunity to visit places and people, making this a great opportunity for any beekeeper and any citizen to spend a delightful and profitable time. Nobody should plan to attend these meetings and then hurry home. New York, "the State that has everything", will furnish adventure and thrills as long as time will permit you to stay. Ontario, across the river from Niagara Falls, New York, will richly repay a visit, and citizens of the United States now find it a simple matter to visit Canada, taking their automobiles if they wish. Formerly citizens of the two countries passed back and forth across the line without formality, but the United States has now placed certain limitations on such visiting. Citizens of the United States desiring to visit Canada (as we all shall during these meetings) should provide themselves with evidences of their citizenship, such as a registration for your automobile, a voter's card from your voting precinct, an old passport, or anything of that sort, so that on coming back to the United States side, you can quickly establish your right to return. United States money now goes ten percent farther in Canada than it once did, which is an added inducement, and the ladies may find it worth while to stock up on fine woolens, imported china, and other things, which may be obtained at prices which will astonish you, if you know such values. A citizen of the United States may bring back duty free goods to the value of $100, provided his visit to Canada has lasted at least two full days, but otherwise he pays full duty, so plan to stay on the Canadian side more than the two-day minimum.

Information will be available at the meetings of points of interest with directions for finding them. There are some beekeeping outfits on the Canadian side which will repay a visit from any beekeeper from the United States, however well equipped he may think his own honey house is, and we shall have a list of readily available apiary outfits where visitors will be welcome. Maps and other aids will be at hand for all who desire them, and there will be beekeepers there to give full details. And while planning the trip, do not overlook the Finger Lakes Region, the Catskills, the Adirondacks, and other beauty spots of the East. You can visit all these in spite of whatever restrictions on the sale of gasoline may then be in effect in the East, and these restrictions may help you to realize that both the United States and the Dominion of Canada are engaged in a terrific struggle to retain our precious way of life.

The sessions on the New York side will be held in Hotel Niagara, those on the Ontario side at Hotel General Brock. Hotels and other living accommodations are abundantly available at any price which you may wish to pay, and Niagara Falls can accommodate many times the number who have ever attended a beekeepers' meeting on this continent. It is hoped that the accommodations may be occupied to the limit. Plan to come, join the crowd, and stay a while, and we believe that it will be both pleasant and profitable. Those desiring to stay at either of the headquarter hotels will do well to make reservations.

XUM

From the Field of Experience

EGG STEALING

By Allen Latham

It was my intention to write nothing further on this subject, but I am averse to having a thing believed which has not had ample proof.

Bees do move eggs, for I have seen them do it. However, in every case they were eggs dropped by the queen either in a queen-cage or on the hive floor. The bees moved them but apparently ate them. Until someone actually sees a worker bee fasten an egg to the base of a cell I shall be a man from Missouri.

It is true that eggs have appeared in queen-cups when no queen was known to be present. Unfortunately for my opponents it was also unknown that a queen was absent.

Bees are creatures of habit and rarely depart from a fixed course. That is, given certain fixed conditions, bees act in a uniform manner. True, different colonies have individual characteristics, for instance rarely do two colonies finish off sections in the same manner. I used to state that I could at times recognize a certain section of honey as a product of a certain colony. In fundamental matters different colonies act in the same manner under the same impulses.

Every beekeeper will accept the fact that when a colony is dequeened the bees will build up a queen-cell over a worker cell as a base. This in spite of the fact that there may be a score of queen-cups in that colony and several hundred eggs. Why, may I ask, if bees will carry eggs about and fasten them in cells, do they not move an egg immediately into one of those queen-cups?

Once in a while a queen-cell is actually developed from a cup in such a colony. Does this prove that a worker bee put an egg into that cup? I have seldom seen this but only this spring did I find a normal queen-cell in a colony which had been dequeened a few days before. Hurrah, say my opponents!

Pause a moment. Do you know that many colonies apparently keep a cell ready most of the time for supersedure? I have known a colony to develop and destroy supersedure cells for weeks at a time. Is it not quite probable that a queen-cup in many a colony has an egg in it put there by the queen?

One of the strange acts of bees is to accept a queen for a day or two and then supersede her. Many a time have I found a supersedure cell in a colony to which I have given a queen, together with a dozen or so of cells of worker larvae. One never knows when there is an advent of a strange queen into a colony, nor does he know how long such a queen may be tolerated. It does not sound reasonable, I know, for a queen to be tolerated only long enough to lay one egg in one cup. For my part I believe it more reasonable than to believe that a bee will go into another colony and steal an egg and then put that egg into a queen-cup.

In all the cases that have been enumerated of apparent egg stealing I know of not one in which the possible advent of a queen could not have occurred. The weakness of Mell Pritchard's position and that of Lloyd C. Gardner is one of logic, for they each come to a conclusion with one of their premises false or undistributed. I am glad that Mell can laugh. But why not, this is not so serious a matter that we need cry about it. I have no axe to grind in this matter. I only seek the truth and I am ever ready to acknowledge myself wrong when I can see a logical reason for it. Will some one come forward who can truthfully say that he saw a bee steal an egg?

I recall how Dr. Miller used to say "take it to the bees". I ask the bees, and thus far they have told me that they do not steal eggs.

We all know that ants do carry their eggs and young about, and that ants and bees have a common ancestor just as man and ape have. We have lost many of the traits still retained by apes, not all, unfortunately, or shall I say fortunately? Undoubtedly bees have been branched from the family tree for many millions of years, possibly even a billion. They may have had an egg-moving habit once when still on the family tree-trunk, but I question whether they still have it on that 10,000,000-year-old branch. If it does crop out once in a while it should only increase our

wonder over the entire life habits of bees.

Now remember, Mell, I mean no offence. I have found myself wrong more than once. There is no crime in being in the wrong, nor in thinking the other fellow is in the wrong.

Norwichtown, Conn.

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BACK YARD BEEKEEPING

By Madison F. Stephenson

Below is a picture of our five hives of bees and my little girl, Betty Lou, who is a good worker with the bees. This picture was taken early one morning before many of the bees were out.

You will notice the second super—a section super—on the third hive from the right has a projecting board placed over the left side. It covers a double glass side and can be lifted off to watch the work and progress of the bees.

Betty Lou and I started with four hives this spring and have increased by one as the result of a large accommodating swarm settling in a tree across the street from us. This swarm is in the hive at the extreme left. We lost some of our early brood by being over-anxious and looking into our hives when the weather was evidently too cold. But, we are learning and find that the care of bees is extremely interesting. We are taking the best care of our bees that our knowledge will permit and so far we are quite proud of them and their fine homes. These bees are in our back yard in town.

Argos, Indiana.

RE: QUEEN-FINDING

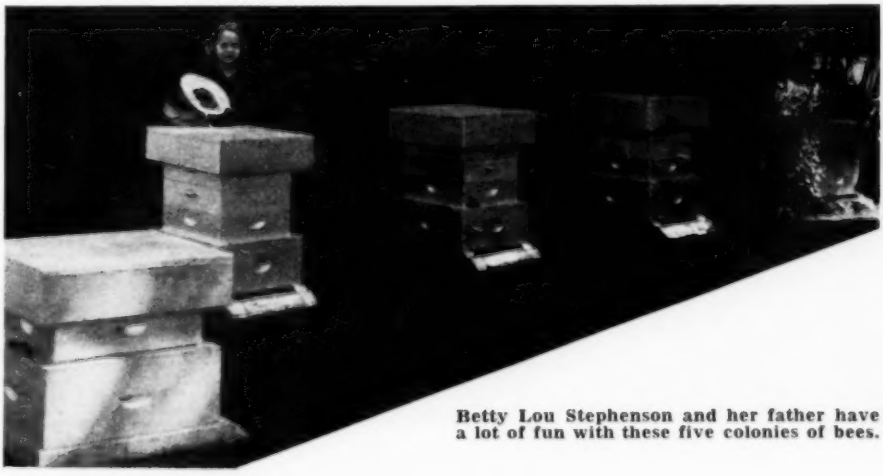
By P. W. MacNeill

I have long ago forgotten where I picked up my particular quirks. I am just a back-yarder and my notions, like some of the older ideas about bottom supering, may be more plausible than profitable. They have seemed to work for me, however: and for better or for worse, here is how I go at it:—

1. When I plan to look for a queen I work down to the first story as quickly, though of course as quietly, as is consistent with good beekeeping, and no fooling around in the supers en route. I realize that the less the disturbance I create while getting to the brood nest the less confusion and congestion I shall have to deal with when I arrive.

2. When I come to the excluder I handle it slowly and solemnly, and precisely as if it were a super, taking care to keep it in the pile in its correct place, and taking particular care not to reverse it. Once I found a queen wandering about on the excluder. Also once I was unable to locate the queen in the brood nest on one visit, but came on her newly established in the supers a few days later; and I charged my trouble to carelessness with the excluder.

3. Having reached a brood-body and having examined and set aside the first comb or two, I split out the remaining combs into pairs as they rest in the hive and I separate the pairs about as far as is convenient. As often as not I have found Mrs. Queen seeking quiet in the center of



Betty Lou Stephenson and her father have a lot of fun with these five colonies of bees.

one of said pairs. I suspect that if the brood nest is left closely spaced it helps a queen to keep just one frame ahead of a perspiring beekeeper.

4. When examining a comb for a queen I try to take my first look at it from a foot or two above it and at rather a sharp angle. I have often found this slanting glance to bring the queen's position into instant focus, especially when she is in motion.

However, I have noticed lately with satisfaction that at least one responsible breeder is offering queens ready-painted for us greenhorns. If this plan works out as I hope it will, perhaps 90% of our queen-finding worries are over.

Moscow, Pa.

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A WORD ABOUT THE RETAIL PRICE OF HONEY

By J. E. McKee

If honey is so good and wonderful (and it is!) why not ask a decent price for it? If an automobile salesman tried to sell me the "best automobile on earth" for less money than an old oxcart or farm wagon was worth I would become suspicious at once. I did contract painting in a University town for several years, and I lost many a contract by placing the price too low. Intelligent people become suspicious when the price is not in keeping with the quality represented and desired. (I knew a painter (?) to bid $70 for painting a house two coats, when I knew it would take $75 worth of lead and at least three weeks labor.) I did master painting and when I set the price accordingly I got hundreds of jobs, and what is more, I got satisfied customers. Last August I opened a small highway honey business here and have had no trouble selling a good many hundred pounds of top-notch honey at 25c a pound in three-pound glass jars. If you offer several sizes nine-tenths of the customers will buy the smallest size and you have a cent or two for your trouble that can never be honestly called profits. Life is too short and human energy too precious to do business without a good profit.

The biggest problem I have is to find a grade of honey that I care to sell. This is especially true of section honey. A good many people "don't like honey" simply because they never tasted real good honey. Produce and sell a honey you don't need to apologize for. Have the customer taste it and you will be trying to whistle the fifth symphony the rest of your days!

Alpine, N. Y.

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PACKING BEESWAX COMBS FOR SHIPPING

By Benj. Nielsen

Perhaps one of the least liked jobs connected with beekeeping is the packaging of old beeswax combs to be shipped for rendering. Ordinarily, it is difficult to pack many of these bulky pieces in a sack. The accompanying photos illustrate the easiest method the writer has yet used in making compact packages of these old combs. The combs are placed in a gunny sack. Then a heavy plank is placed on the top of the sack, as shown, and the car wheels are run up on the plank. This weight crushes and packs the combs in short order. The process is repeated until well-filled sacks are obtained.

Placing old combs in a gunny sack preparatory to packing.

Crushing and packing the wax by running car wheels up a heavy plank placed on top of the sack.

SECOND GLANCES

By C. M. Isaacson

While I am not one of the number who believe that honey needs to be made "crystal clear", it is easy to see the value of the Lothrop-Paine article to those who do wish to use the filtering method (page 485). The retarding of granulation is a point of convenience in favor of the process, but to my mind, **slight** cloudiness in honey is an advantage when comparing it to many syrups—which look "manufactured" in their sparkling clearness.

The shipmast locust is certainly well named, to judge by the tall, straight trees in the picture (page 489). It is too bad that it is not a reliable nectar-yielder, their size would make for a wealth of blossoms. In resistance to rotting, the wood seems to be comparable to cypress—I surely would like a few of those fence posts!

Mr. Tontz' license plan to combat AFB has its attractive points (page 490), but I can also see a possible objection. In the hands of the wrong people (and there unfortunately are such), it could conceivably be used to prevent new beekeepers from obtaining a start—at the instigation of some who believe that there are "enough bees". And if inspectors have such a hard time enforcing the present AFB laws, is there any reason to believe a license law any easier to enforce?

The article on honey marketing is interesting (page 492). That most stress is laid on honey during the "cold seasons" is a fact known to any with experience in retailing their crop. And that advertising is believed to be the main need by most grocers shows plainly the necessity for constant and **sufficient** support of the one agency already organized to do much of the work effectively—the American Honey Institute.

Never having had EFB in my apiary, I am not in position to speak from personal experience, but is it not true that a vigorous strain of Italian bees is considered able to clean up and keep under control this disease? How does this tie up then, with Miss Betts' mention of complete destruction of bees and combs (pages 494-496)? Perhaps the bee generally used in England is more susceptible.

Mrs. Nielsen seems to find as many ways to use honey in foods as a bee has flowers to visit. If the results back up the descriptions (and I am sure that they will), there will be a lot of new honey users—especially if beekeepers help to spread the good news.

Students interested in this field, certainly have a splendid opportunity to learn correct beekeeping methods at the University of California—with able and experienced men to direct them (page 500). Better methods and better beekeepers must inevitably result.

The item on trapping bees from buildings (page 502) was of especial interest, as I had just finished using this method to remove a much-in-the-way swarm from a barn wall. I can testify that it really works.

Evidently the bee-eating robin was an individual case (page 503). A few birds can, and probably often do, give a whole species a bad name, but the real remedy is to deal with the ones doing the damage.

Editor Deyell tells of a feeling that I believe most of us have had when we encounter a seemingly strong colony of "I Won't Works". Maybe the kicking doesn't help but we have to express our feelings some way. Here's to both requeening and kicking (page 505).

Uneven-looking apiaries may often be due to improper management of the year before (see page 510) but sometimes it is more beyond the control of the producer. For instance, if a lot of purchased queens happen to have been raised under poor conditions, supersedure is sure to be bad next spring, and supersedure means uneven colonies.

Mr. Norgren's bees must gather their propolis from different sources than mine (page 516). Whenever I try any in the smoker, they sting like drops of liquid fire. A little wax is better.

In Talks to Beekeepers (page 524) is one of those little hints that is worth a lot—using salt in front of hive entrances. It should save a lot of work spent in keeping the grass down. I intend to use it next season.

After many experiences this season, I feel that I can well close with a repetition from J. L. Byer's comments—"Bees do nothing invariably". Every beekeeper should start the day by remembering it.

Middle River, Minnesota.

The Smile that Won't Come Off

On the Opposite Page are a Few Snapshots of the Wisconsin and Chicago Field Day Meetings---July 22-27

By E. R. Root

The July Field Meetings in Wisconsin and Cook-DuPage-Will-Grundy-Kendall Counties, Illinois, were held respectively at Mt. Horeb, at Blue Mountain Park, Appleton, and Menomonee, Wisconsin, and at Legion Park, Lockport, Illinois.

The meetings were all well attended. Last year's crop of honey has been pretty well used up. With rising prices and a good crop of honey for 1941, beekeepers were wearing smiles—the kind of smiles that won't come off.

Mrs. Harriett M. Grace was present at all of the Wisconsin meetings and took a very important part, first before the general assemblies and then to groups of women alone, where honey cookery was her main theme. You will see her in action in Figs. 1, 2, and 3. See also Editorial about her work in this issue.

While there were a large number of beekeepers who number their colonies by the hundreds or thousands in Wisconsin, one of the best honey producing states in the Union, there were some beekeepers who have only a few colonies. I take pleasure in introducing one of this number, Mr. M. C. Lundgren, his wife Eleanor, on the right, and Miss Violet Prentis on the left. See Fig. 4. We are always glad to see these smaller beekeepers, and while they may appear as beginners, they have read everything in the way of bee literature more thoroughly and more carefully than the experienced beekeepers who sometimes think they know it all.

H. J. Rahmlow, State Horticulturist of Wisconsin, and Secretary of Wisconsin State Beekeepers' Association, as usual, was the guiding spirit of all of the sessions. He took a prominent place in his questionnaire, each question being fired at some prominent beekeeper who had had a large experience. Mr. Rahmlow is in a flash picture, Fig. 5.

There was one question which Mr. Rahmlow put to the beekeepers at large, at all three of the meetings. It was this; "How many use double-story colonies or brood nest and food chamber the year around?" Had that question been asked four or five years ago probably not more than one or two hands would have come up. At all the meetings Mr. Rahmlow asked for a show of hands. Practically every hand came up showing that the beekeepers now believe in strong colonies and that strong colonies mean big crops of honey. See one such demonstration, Fig. 7.

Fig. 6 shows the beekeepers assembled at lunch time with Mrs. Adam Bodenschatz, the real generalissimo, who took charge of the tables and then after refreshments, supervised the games indulged in by the younger people at the meeting. See her at the arrow pointing down.

One of the men at Mt. Horeb was Mr. N. E. France, pioneer in bee inspection movement throughout the U. S.,—a man who set the pace for doing this kind of work throughout the country. Still a beekeeper, he has now reached the age of 90 with a mind as clear and active as it was in the early days. See Fig. 8.

Dr. V. G. Milum of the University of Illinois, Fig. 9, is showing by samples how honey deteriorates in color and flavor on standing for a long time in a temperature of 70 degrees or over. More discoloration takes place after it has been prepared for market than occurs from improperly heating or clarification.

In Fig. 10, at the right, is a picture of Mr. James Gwin. Dr. E. Oertel, of the Bee Culture Laboratory, Baton Rouge, Louisiana, is shown on the left. Mr. Gwin has now been advanced from a position covering not only that of Marketing Specialist but several other departments in the state's activities, including bee inspection work. Dr. Oertel is the one who has sent out a recent bulletin, notice of which will appear soon.

In Fig. 12 appears a row of the representative beekeepers who it is presumed embody the best knowledge and experience covering certain questions put to them,—particularly those for the year 1941.

Figs. 6. 9 and 12 show one of the best meetings ever held in Chicago. They, like the Wisconsin beekeepers, have been having a good season.

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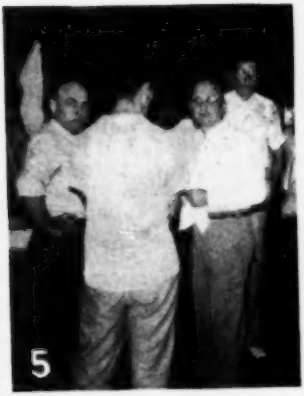
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Editorials

Don't forget the Southern Beekeepers' Conference at Lynchburg, October 21, 22, and 23. See pages 519, August, and 568, this issue. This promises to be one of the big events of the year. Don't forget, either, the international meeting at Niagara Falls on November 12 to 14. See page 569 of this issue.

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Honey Prices Advancing At this writing it is evident that last year's white honey in car lots has been cleaned up, leaving small lots here and there. There was left over from one and two years back, amber honeys of good flavor that formerly went to Europe but which on account of the blockades and no market here, have been held in warehouses with a sagging price. The Surplus Marketing Administration purchased three-and-a-half million pounds of this at 4½c, the same to be used for school lunches. See June Gleanings, page 382. If the Food, Drug and Cosmetic Administration shall insist on a minimum of 20% liquid honey in a bread bearing a honey label, this may throw 15,000,000 pounds more of this year's white honey on the market that heretofore has been going to the bakers to be used in honey bread. See page 577, this issue. If, and when, this amount is added to the 1941 crop, what will happen? Your guess is as good as ours.

Now let's see the other side of the picture—the side that looks toward an advance in the price of the 1941 crop. Mr. L. D. Taylor, who operates over 3000 colonies in Iowa has an advertisement in this issue, (page 594) offering to buy a million pounds of honey which he wants in addition to his own crop. Two large packers have offered to buy the whole of the Wisconsin crop at a price, cans thrown in.

It is apparent at this writing that the prices offered this year are at least a cent above last year's price with many beekeepers inclined to hold for a further advance.

It appears that large quantities of honey are going to the Canadian Government as a required food in the dietary of Canadian soldiers and

(Continued on page 592)

Straining Honey A talk entitled, "Straining Honey in the Honey House", given at the Tri-State meeting in Angola, Indiana, by Dr. E. F. Phillips of Cornell University, brought out the importance of straining honey thoroughly after it has been extracted from the combs.

According to Phillips, honey is an active material, not inert stuff. Honey with a considerable amount of foreign matter and suspended material should not be allowed to stand too long before being strained, because this suspended material may impart a bad flavor to the honey. Honey reacts to every particle of foreign matter.

Beekeepers should send honey to market in such a condition that it is unnecessary to strain it.

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The Tri-State Meeting of Ohio, Indiana, and Michigan on August 6, 7, and 8th, at Angola, Indiana, was a big success measured by the excellent program, the hilarity, and good will that was shown on every face. In our October issue we will have a report of the proceedings and flash pictures of the speakers in action. Thanks to Jere, Charlie, and Cliff, there was not a dry minute or a sour word spoken during the three days. There was plenty of noise, good music, laughter, give and take, and last, but not least, good eats at moderate prices. The lake and grounds are beautiful and the water was fine. Gleanings recommends that we have another meeting at the same place and of the same and bigger crowd a year hence, engineered by the same Committee—Messrs. Dunham, Starkey, Kelty, Reese, Woodman, and Muth. Go to it, boys, and we will help boost. One big meeting is better than three little ones in three different states.

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Improving Bee Pasture One way to increase the acreage of nectar plants around apiaries is to interest farmers in planting more clovers, buckwheat, and vetch. Some commercial beekeepers pay as little as possible

for apiary sites. Sometimes they give the land owner a can of honey. Others, not many, pay a reasonable rental.

We know one commercial man with almost 1000 colonies, who, during the past decade or longer, has given sweet clover and alsike seed to farmers in return for the privilege of placing apiaries on their farms. The scheme has worked out to the advantage of both. The farm is richer because of the legumes and the bee pasture during the years has steadily improved. This commercial beekeeper has found it unnecessary to move his apiaries. Moving bees is expensive because it requires large trucks and ample manpower.

A little foresight on the part of commercial beekeepers, also intelligent cooperation with farmers might improve the quality and increase the quantity of bee pasture, which, by the way, is one of the essential requirements in the production of honey.

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Federal Regulations on What Shall Constitute a Honey Bread

On page 510 of our last issue we stated that a hearing would be held under the Federal Food, Drug and Cosmetic Act, to determine how much or how little honey could be used in a bread and call it "Honey Bread". Unfortunately the proposed regulation requires not less than 16 parts of honey solids to each 100 parts by weight of flour—or 20% honey in a liquid condition.

Mr. Parks, president of the American Honey Institute, appointed the following to appear at the hearing originally set for July 7 but which was not held until August 1. Persons appointed were R. B. Willson of John G. Paton Co., N. Y., E. R. Root, The A. I. Root Co., Medina, G. P. Walton, Bureau of Agricultural Chemistry and Engineering, Harold J. Clay of the Marketing Division.

The previous survey of the American Bakers' Association as well as the testimony at the hearing on August 1st revealed that the bakers have been using from 2 to 9% liquid honey in bread where honey was used exclusively and from 1 to as high as 8% where honey was used with other sugars. The purpose of using 4% solid honey in bread, according to the testimony at the hearing, was four-fold: (1) Moisture-absorbing-keeping qualities, (2) consumer appeal, (3) a fine texture induced by vigorous fermentation, (4) a rich brown color due to the ready caramelization of honey in the presence of heat. Nothing is gained by using 20% liquid honey except to add sweetness not wanted in a bread.

All the testimony of the representatives of the American Honey Institute was in favor of a lower percentage, namely, 4% honey solid or 5% liquid. The bakers testified that a 20% would make a bread too sweet, soggy and difficult to make. The Food and Drug witnesses sought to prove that bread should not be called honey bread unless enough honey were used to detect a honey flavor and a sweetness, and determined that the amount was 20%.

Witnesses for the beekeepers and the bakers brought out the point that 400 and 500 degrees of temperature to bake a bread would modify any honey flavor that might be in the uncooked honey itself.

The testimony consumed practically a whole day. The bakers admitted that it was possible to make a honey loaf containing 20% liquid honey in a laboratory but that when that amount of honey is used in the commercial bakeries it involves difficulties to such an extent that bakers would all cease to use honey. This, as pointed out in our last issue, would be a disaster to beekeepers, a large part of whose crop goes to bakers, a blow to the bakers making a specialty of honey bread and a blow to the fruit growers as some beekeepers would be forced out of business.

It will be two or three months before a decision will finally be rendered. Testimony, pro and con, was taken down in shorthand and will probably be available to the public.

The writer, as he expressed it in his testimony at the hearing, has every reason to believe the Food and Drug Administration will give us a square deal.

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An Achievement —A Long Step in Advance

Dr. Bodog F. Beck of New York City once made the statement that if we could get the American Medical Association to accept and recommend honey as a suitable sweet for infants, all children, old people, and those with impaired digestion, it would not be long before honey would be adopted in the nursery and mothers would be feeding their babies honey in place of corn

sugar, glucose, or other forms of sweets, and medical doctors would recommend honey instead of glucose for babies.

We have been hoping and praying that the day might come when the American Medical Association would endorse and recommend honey for infants. Thanks to Mrs. Harriett M. Grace, of the American Honey Institute, that day has arrived. We are not, of course, getting all we would like but we are getting enough so that it's a **long step in advance,** a step that will lead to a further recognition, and when that day arrives honey will occupy a unique position not shared by any other form of sweets, especially artificial sweets.

Mrs. Grace has gotten out a new book entitled, "Old Favorite Honey Recipes". On the front title page we find the insignia of the American Medical Association, reading "Accepted American Medical Association Council on Foods". Down below this in a paragraph by itself it reads, "This seal means that all of the nutritional claims made in this booklet have been reviewed and found acceptable by the Council on Foods and Nutrition of the American Medical Association".

On the second page we find this:

Honey is a natural, unrefined, nutritionally valuable food. It is unique in that it is the only unmanufactured sweet available in commercial quantities.

Seventy-five per cent of its composition is sugars which give honey an energy-producing value second to few foods. Commonly used sugars, cane and beet, must be broken down into simpler sugars by digestive juices before they can be assimilated into the blood stream and tissues. These resulting simple sugars, dextrose and levulose, make up almost the entire sugar content of honey. This makes it reasonable to conclude that little digestion is necessary and absorption takes place quickly. It is also reasonable to conclude that, except in unusual cases, the utilization of honey puts no tax upon the digestive system.

In addition to the sugar content of honey, it contains a small quantity of various minerals necessary for good nutrition and undetermined constituents.

Honey in Infant Feeding

Ask your physician for a formula in which honey is included. Because of the composition of honey it is recognized as a satisfactory supplement to milk in infant feeding.

Honey is also an excellent source of readily available energy for growing children. It is good for all ages.

"Honey appears to have a special advantage in infant feeding. Since it is easily obtained anywhere and is very palatable and digestible, honey would seem to be a form of carbohydrate which should have wider use in infant feeding."*

*By permission F. W. Schlutz, M. D., Bobs Roberts Memorial Hospital for Children, The University of Chicago.

Note this referring to honey "Little digestion is necessary and absorption takes place quickly. * * * The utilization of honey puts no tax on the digestion system. * * * Honey appears to have a special advantage in infant feeding' * * * Honey is good for all ages."

On Page 5 we find the following:

Cakes made with honey retain moisture longer than cakes made with sugar. The water content of honey cakes is greatest on the third day. The kind of honey appears to have little or no influence on moisture content. (Reprinted from Journal of Home Economics, Vol. 29, No. 1, January 1937, Dr. Harriet Morgan, Univ. of Cal.)

The ability of honey to absorb and retain moisture and thus retard the drying out and staling of baked goods is of great importance to the homemaker who wishes to do her baking in advance. This property of honey is also very valuable to the baker.

Now it seems to the writer that we have nearly all we might ask for. There is no statement recognizing honey as a food for diabetics, but we believe that other steps are yet to follow. Some further work is being done at a great medical school and we soon will have all that we can reasonably ask for.

Mrs. Grace, of the American Honey Institute deserves a vote of thanks, not only on the part of mothers in this country, but all beekeepers who have honey to sell and who have been saying for years that honey has virtues that no other sugars have.

We make the suggestion that everyone write to the American Honey Institute, Madison, Wis., enclosing 10c each for half a dozen copies of "Old Favorite Honey Recipes". As soon as you receive them read what it says and then hand a copy to your local physician and ask him to look it over carefully. Now the beekeepers can introduce this booklet to the doctors of the entire U. S. at a comparatively small expense, (10 cents per copy) and when the doctors once see that honey has a virtue or a value in excess of other sweets, and that the American Medical Association recommends it, they will recommend it in their practice.

In this connection the reader should turn to pages 510 and 511 of the August issue of this journal.

We do not believe that the Food and Drug Administration will have any objection to statements made in this booklet, but we advise our readers to be very careful not to exceed any statements made in the book in question. Better copy it exactly and, of course, give credit to the American Honey Institute.

From North, East, West and South

NORTHERN CALIFORNIA, Aug. 4.

Weather: It is quite difficult to give in writing a good description of the weather of Northern California because there is such a variety. Here in the Bay Region we seldom have extremely hot weather. Every day in summer we have sunshine. During July some of us thought we had more than our share of foggy weather. Fog here is high and disappears early in the forenoon. It may return in the afternoon and if it does, the next morning may not have sunshine till nearly noon. A few miles away the sun is shining brightly and there is complaint of too much heat. In the mountains occasional thunder storms are not uncommon. Take it all together we have good weather.

Condition of Bees: The lack of rain in summer prevents the complaint of beekeepers that their bees cannot get honey because of the water in flowers. In all the territory where the honey flow is over in June and July and bees are not moved, they have little to do but gather gum and close up all the openings preparing for the rainy season which is our winter. That is our condition today in the Bay Region. A few miles away the star thistle and lima beans are commencing to produce. There the bees have nothing to do but gather nectar and pollen, and but little gum is produced. Up to this time bees have not stored as much honey as beekeepers expected. The star thistle wants warm nights while the lima bean prefers cool weather. So far we have had no other. Farmers are not friends of star thistle and where they can get rid of the growth, they do it. From reports that reach us we must conclude that the crop will not be as good as was expected earlier in the season.

Market: It is too early to know just what the market for honey will be. The purchase late in June of nearly 2,000,000 pounds of California honey by the Surplus Marketing Association for its School Lunch Program definitely strengthened the market, especially for honey darker than white. While the price is too low, it is at least a cent over what the beekeepers have been able to get for some time for the grades of honey that will be included. This is being reflected in prices that are being offered for the new crop and we know of at least one case in which 4½c is being paid for California wild buckwheat after an original offer of but 4c. The committee appointed by the State Association to encourage better prices has received much credit for their untiring work. They tell us there is much more to do and they propose to stay with the job until it is finished.

Beeswax: There is a marked improvement in the price for good clean yellow wax. There is little offered as beekeepers have learned that it is more profitable to turn it into foundation. It is gratifying to know there is a growing interest displayed at all summer meetings in favor of more careful production of honey for market. There seems to be a universal demand on the part of beekeepers that new cans and cases be used in preparing honey for market.—Cary W. Hartman, Oakland, Calif.

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SOUTHERN CALIFORNIA, Aug. 2.

Weather in Southern California is just about what we might expect, not the unusual so often quoted. July ran very much to form although we did have three or four days when the thermometer climbed to the hundred mark and a week or so that was cool for July with one day marked as the coolest July day on record. Whether this had any influence on the secretion of nectar we are unable to say.

Honey Crop: The honey crop, taking Southern California as a whole, will not be over one-half of what we had hoped for. The beekeepers in general are very much disappointed in the yield from wild buckwheat, white sage and other late-blooming honey yielders. Some think that a late rain was needed to give the finishing touches for a crop, but who knows?

Colony Condition: Most colonies are reported to be in good condition. Owing to the excessive swarming in early spring some colonies took a goodly part of the honey season to get back into shape. Now they are full of bees and brood and no place to go. Some of these colonies will need help from other colonies to have stores sufficient for winter. Disease conditions are reported well under control with very few colonies affected.

Market: The demand is strong with prices well toward one cent above those of last year. Buyers are inquiring of beekeepers, how much honey have you, and what price are you holding for? Considerable honey has left the beekeepers' hands but some are holding hoping to reap a little of the benefit should there be any considerable rise in price. With so many of the commodities we have to buy advancing in price it is not selfish to wish to get some of the benefit should honey take a move upward.

Miscellaneous: With new F.H.A. houses going up on every street, $1.00 an hour workmen doing the work, 1941 automobiles in every block, oranges going up in price, we only wish that we could put a little enthusiasm into our letters that would reach the hearts of the beekeepers but we must admit, they are not a very hopeful bunch. We have been wishing now for several years that the path would be a little brighter and the old saying, "It is always darkest just before the dawn", might come true. We sold 3½c honey only a few years before we sold 20c honey during the last world war and it might happen again.

"Low sugar content." This term was applied to the nectar from the orange this past spring. There was plenty of nectar but the bees paid little attention to it until late afternoon, when presumably it had thickened to an extent where it was attractive to them.

One of the things that we fail to understand is the difference in the yield per colony from the apiaries in different localities only a few miles apart. In some locations that in former years were at the top in yield per colony, this year are not over fifty per cent of their normal yield.

Most beekeepers have inspected their bees for disease, queenlessness, and general conditions, and have left plenty of stores for winter. Most of the surplus honey has been taken off and few beekeepers look for any more this year on the unirrigated ranges in Southern California.—L. L. Andrews, Corona, Calif.

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TEXAS, August 1.

Weather: July witnessed the return of normal weather to most of Texas. The rains which were so abundant during the first half of the year ended and normal hot, dry, calm weather of Texas summer did a great deal to aid the beekeepers. Throughout much of the State heavy yields of horsemint honey were collected and the dry period which began with July enabled the bees to rework this honey so that no large amount of cap blowing has been reported. So far as can be ascertained good crops of honey have been gathered in all the portion of the State with the exception of the cotton country. Southwest Texas made a better than normal crop of horsemint and horsemint-mixed honeys.

Crop: In some localities reports of better than normal flows from guajillo and catsclaw indicate that in locations far removed from the ordinary honey country the beekeepers have done well. This is especially true of the Big Bend section where good flows from white brush and several varieties of catsclaw have given two yields. Reports from the cotton section indicate that poisoning is very common but as yet no beekeepers have reported any loss of bees. Several trips made this month indicate an awakened interest in beekeeping and a considerable number of old beekeepers enlarging and new men taking up the work. This seems to be true in the extreme southern and southwestern parts of the State.

Market: Honey is being offered at roadside markets in far greater quantity than ever before. The prices are about the same as those asked in the chain stores in cities. Beekeepers report the sale from these markets are good. At the same time assemblers are buying up all large holdings both of honey and beeswax as the demand for both honey and beeswax is becoming stronger.—H. B. Parks, San Antonio, Texas.

UTAH, August 5.

Weather and Condition of Honey Plants: June is usually our driest month, but this year both June and July have been especially favored with suitable weather for plant growth. There is no lack of irrigation water, and the condition of the honey plants is quite satisfactory as far as moisture is concerned, but there have been some recent complaints that insects and worms have done considerable damage. In at least two counties where the normal honey flow started about July 10th, it suddenly shut off. It was discovered that the clover fields looked as if a fire had gone through them, then, due to the resulting dearth, the bees began to work on the recently distributed grasshopper bait, and died. A few days ago I visited one of these sections and found a new honey flow coming on. I was not in a position to make a study of the cause of the recent dearth or the identity of the creatures that had caused it, and I am still in the dark; but it seemed to me that either the excessive rain or the grasshopper bait had destroyed the insects, or they had reached the adult stage and left the fields. Before I could leave home to visit the other troubled area, I was informed by long distance telephone that a new honey flow was on, the bees had left the bait, and my services were not needed. In the meantime the county agricultural agent was advised to regulate the distribution of the bait as a safeguard for the bees.

As we have stated before, white sweet clover has almost disappeared from our state, but this year it appears to be slowly coming back in a few places. Our chief source of nectar is alfalfa, and this is cut before the first crop gets fully into bloom, as a means of controlling the weevil.

Condition of the Bees: During the dandelion-fruit bloom there was so much rain that very little honey was collected. As a result, when the normal June dearth came there were not enough stores to support brood-rearing, and the population decreased until the colonies were not as strong as they were in April.

The prospects for a crop therefore, are not nearly as good as would be expected if the pasture alone were to be considered.

The Market: The prices of honey and wax remain painfully unchanged. Cheap, ungraded honey has stocked the chain stores, and the public has come to look on 69c pails as the standard price for honey. There are no standards for grading and conscientious producers are at the mercy of the chain stores and the unscrupulous price-cutting beekeepers of our own and the neighboring states.—J. Fleming Wakefield, Provo, Utah.

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SASKATCHEWAN, August 6.

Weather: In this western plains country we either seem to have a great surplus or a great scarcity, excellent weather or the reverse. There does not seem to be any happy medium. Last spring colonies came out of winter quarters in good condition, and although the spring was late in most sections of the province bees built up well and the plentiful fall moisture we secured the previous year resulted in good growth of clover early in the spring which the cool spring weather did not retard. Some sections of the province, particularly in the southeast received spring and early summer rains, but the central and north parts of the province received little or no rain during the spring and early summer, and it was only due to the good moisture conditions of the previous fall that plants yielded nectar during July in a normal manner. A good flow was secured until toward the end of July, when excessively hot weather was experienced for a considerable period of days over all areas of the province. Temperatures of 100 degrees were common and official temperatures were recorded up to 110 degrees. This heat, coming during a very dry spell, dried fields of clover beyond the point where rains received subsequently are likely to revive the plants and bring them to a nectar-producing condition again. The greatest heat wave was experienced on July 26 and today, August 7, there has been no indication that much nectar is being secured by bees in any part of the province, even though ample moisture has been secured since the heat.

Honey Crop: Needless to say recent hot weather will seriously curtail

the honey crop. Saskatchewan was looking forward to a bumper crop this year due to the fact that there was a 25% increase in the number of colonies of bees kept and a marked improvement in the amount of sweet clover pasture available. Instead of a bumper crop it is likely that the crop will be no larger, if as large as last year.

Market: The market is short of honey and if the new crop is marketed in an orderly manner prices should be maintained or advanced somewhat from last year. Early honey is being offered to the market at an advance of 1c to 1¼c over last year's prices and is being purchased readily. —R. M. Pugh, Fort Qu'Appelle, Sask.

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ILLINOIS, August 9.

Weather: Nothing but praise can be said about the weather this season. The weather for the entire season appears to have been prepared by some master chemist, prepared especially for beekeepers. This has been one of those rare seasons when we had just the right amount of sunshine, moisture, heat, humidity, and blossoms. In fact, it was almost perfect. I am speaking of the weather for Central and Eastern Illinois and perhaps Western Indiana.

The Crop: Most of the State has had a fine crop this season. There were spots where beekeepers failed to get an average crop. It was no uncommon sight in properly managed apiaries to see quite a number of colonies with well over 250 pounds on them. The honey is excellent in quality and color. Colonies operated for section comb honey have done very well. Locally, white Dutch clover was very scarce. There was an occasional field of alsike but an abundance of sweet clover, both white and yellow.

Markets: The markets are looking up. We are asking a slight increase in most sales and getting it. It has been years since buyers have been so active, especially in buying section comb honey. Fellow beekeepers, let's use one side of our mouths to smile with this fall.

Miscellaneous: This report is being written at our information booth in the Bee and Honey Exhibits at the Illinois State Fair grounds. No other time to write! It is two days before the opening date and already some of the exhibitors are arranging their booths and decorating with various colored crepe paper. Often one gets a glimpse of some exhibitor digging into his packages to show his neighbor (and competitor) some of his fancy wares. It's a gala time! And the beekeeper who has not shown at the Fair has missed a great experience. Those long days of preparation, picking the season's best, packing and handling these wares—all these are trying days. We (and I mean the exhibitors especially) think that we have the greatest honey show on earth. This is my fourth year as Superintendent and the show grows bigger and better every year. Aside from the honey show there are thousands of honey recipes given to those interested by the two ladies having a booth for honey demonstrations at the Womans' Building. Contacting the American housewife is an important means of helping the honey business.—Carl E. Killion, Paris, Ills.

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INDIANA, August 6.

Weather: Until June 15th it looked as though there would be no clover honey produced in this locality. But following heavy rains about that time, ideal weather has prevailed, enabling the bees to store more than an average crop from basswood and sweet clover.

Honey Crop: Basswood bloomed profusely about ten days earlier than usual. Sweet clover, also, produced more heavily than we have ever known it to do in this locality. Well-kept colonies, where swarm control has been practiced, have produced to date a surplus of 150 to 200 pounds per colony. Others probably less than half that amount. There is a good prospect for a crop of fall honey from heartsease and goldenrod in low-lying areas.

Miscellaneous: We have been "enjoying" some exceedingly torrid weather during the last week or two and it seems to have dried up all sources of nectar. Sweet clover now is done blooming and there will be nothing more here for the bees until about September 1. The early upland goldenrod usually has nothing in it

for the bees, but with cool nights and warm days the later-blooming varieties sometimes give us a larger crop than that derived from the clovers. The largest crop of fall honey we ever got came after a hot, dry summer when it seemed that feeding would be necessary in order to save the bees. A good rain in early September followed by clear weather enabled them to pile up about 200 pounds per colony from heartsease, goldenrod, and aster. However, conditions vary greatly within a few miles. In the sandy soils along the southern shore of Lake Michigan, horsemint and a kind of milkweed often afford a heavy flow of dark honey in August and I am told that in the Kankakee River bottom, some thirty miles further south, heartsease, blooming in late August and early September, provides the main crop.

Prices should rule considerably higher this year in accordance with that of other commodities. There is no sense in disposing of comb honey at last year's prices which have been far below cost of production. Extracted honey, also, has been quoted at prices affording little or no profit to the producer. If the beekeeper will not demand a fair return for his labor and investment, he'd better quit.—E. S. Miller, Valparaiso, Indiana.

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WYOMING, August 1.

Weather: Frequent and scattering showers have fallen over the entire State. Some losses have been reported on account of hail, and a few days ago a cloudburst in the Riverton area caused heavy damage to irrigation flumes, necessitating ordering new steel work out of Denver, leaving many farms without water until repairs can be made. During June there was an unusual amount of cold windy weather requiring feeding. When the weather turned warm we had the other extreme with temperatures around 100 with brisk winds. Sub-soil moisture which has been missing for 8 or 10 years is still lacking so that honey plants will not last long if the occasional showers stop.

Condition of Bees is below normal. Many colonies reached the verge of starvation after dandelion bloom and much brood was lost.

Honey Flow has been as erratic as the weather. Extracting is under way but at this writing it is very doubtful if this year's crop will be as large as the 1940 yield. Supers are not very well filled, and only strong colonies have been able to draw out combs from full sheets of foundation. There are many acres of alfalfa being left for seed, but the bees are not working it and the outlook for seed is not bright. Sweet clover is drying up and going to seed.

Market: Conditions are still on the decline, even the below-cost-of-production price advertised by local chain stores of 65c per ten-pound pail is not selling much honey.

Miscellaneous: The Food and Drug Administration is a very busy branch of the WPA. "We have no evidence", they say, "that honey has any value over and above that of other readily available sources of carbohydrates" and shipments of honey have been high-jacked by the F&DA for being labeled with such phrases as "Health Sweet" or "The Bee Line to Health". The Government has no research data on honey to disprove the findings of many reputable physicians on their use of honey, but under the new pressure being applied by the F&DA you cannot even make mention of these various declarations we have been reading for years in our bee magazines and text books either on your labels or in a separate piece of printed matter without certain prosecution on interstate shipments, if the F&DA comes across such "False and Misleading labeling".

With the steady decline in honey prices for the last decade, and the ever shrinking lack of consumer demand we have undoubtedly come to the point where we must tell the public WHY they should use honey. If our product has no more merits from a health standpoint than refined sugar, as the F&DA claims, then such an authority as the late Dr. Banting's statement "The incidence of diabetes in the United States has been in direct ratio to the increased per capita consumption of cane sugar, one cannot help but conclude that in the heating and recrystallization of the natural sugar cane something is altered which leaves the refined product a DANGEROUS FOODSTUFF" is all wrong? Mere honey recipes displacing a portion of sugar is not creating the market we need. And from a review of our National Health, revealed by rejections to military

service there is more than one angle to this important question.—Earl C. Reed, Ranchester, Wyoming.

[If one will turn to page 578 of the Editorial Department in this issue, he will see that the situation so far as what we can say about the virtues of honey on a honey label or a booklet has probably cleared up somewhat. The Food and Drug Administration does not object to statements in favor of honey that can be proven. It is obvious that anything said that bears the seal of approval of the American Medical Association, our highest authority, will be accepted by the Food and Drug Administration. But it does object to any reference to honey as a "health sweet" or as a "health food" because these terms have been so often misused and misapplied on other foods. Honey producers and all others should abandon their use on honey labels and in all literature proclaiming the virtues of honey.

Unfortunately, beekeepers are still using the terms on new labels, probably not knowing that such terms come under the head of misbranding and are contrary to law. Honey bearing a label of honey "a health sweet" or honey "a health food" is subject to seizure and the owner to arrest and fine when the product passes a state line. Some states now have statutes conforming to the Federal Law and others, it is evident, will soon enact such a statute. It is plain that it will be dangerous to use the terms "health sweet" or "health food" referring to honey.—Ed.]

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VANCOUVER ISLAND, August 5.

Weather: This spring was one of the earliest on record for this part of the world. An unusually mild winter was followed by the warmest March we have ever experienced here and early beekeeping operations, examining, and cleaning hives was carried out unhindered. Brood-rearing was about six weeks ahead of the usual for this district. Because of this fact stores were soon exhausted in the hives and feeding was continuously necessary, as there was not sufficient feed from the flowers to meet the demand. Pollen was abundant, however. The earliest swarm recorded was taken on March 28th by a beekeeper 20 miles away, near the sea. Our district being over 500 feet above sea level, we are generally three weeks later than other districts that are only a short distance away. April was unfavorable, wet and cold, and May again lovely, but with the hives so full of bees and brood, and stores low, only enough honey was gathered to meet daily requirements, so when another cold and wet spell came, in early June, feeding had again to be kept up, until well into the month.

Honey Flow: The actual honey flow started about the middle of June until the 12th of July, and there was all the prospects for a bumper crop. Bees were working feverishly, and every available super was put on. But alas! one was reminded of the wise old saying, "Praise a good day at night!" The same might be said of a honey crop! A heat wave came and continued for over a week, withering even the early thistles before they bloomed! Temperatures ranged from 100° to 106°. When rain finally came it was not sufficient to do much good. There **may** be an average of 35 pounds per hive, but it is doubtful. Of course, this is this district only. In other parts of the Island there has been an average crop, around 60 to 75 pounds per hive. The latter is the average for the southern section of the Island.

Miscellaneous: Swarming varied considerably, but on the whole was not as high as last year.

On June 26th, the bee inspector for the Island paid his anual visit, finding all satisfactory, but with the disturbing news that AFB had been discovered nearby, and several colonies had to be destroyed.

Last year's honey stocks are not quite exhausted. There is a steady local demand for honey. People seem to be realizing that honey can be used daily on bread and butter; **not** merely kept as a medicine for colds and coughs in an emergency! So far there has been no change in prices.—Mrs. Margaret Maynard, Lake Cowichan, B. C., Canada.

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VERMONT, August 6.

Weather: Since the middle of March, the weather here has been the same old story — beautiful weather. In fact, it has been so beautiful these past four months, it has forgotten all about some rain occasionally. We certainly would appreciate some bad weather right now. According to Hoyle, we are in a moist climate, but when we read of the rain and floods this summer in the south central and central states that are supposed to be the dust bowl, we can't help but wonder if Hoyle has slipped up somewhere. There have been occasional showers, very local, that have managed to keep green most of the grass. The valley near the mountains received the most rain while near the lake, only a matter of 12 miles, rain has been very scarce with pastures burned brown

in June and July. It appears that beautiful weather will continue, the only difference being nights now are starting to get cooler.

Crop Conditions: Every year it seems, is unusual for some reason or other, and this season is no exception. Our clover crop is supposed to start about the 12th of June. It did, but after a flow of about a week, nectar fizzled out of the blossoms and with acres of bloom not a drop of honey in it, due no doubt to the dry weather. However, about the second week in July, when second crop alfalfa and clovers started to bloom, blossoms began to smell as if they had some purpose for blooming, and bees that had sealed up honey combs thin, began to bulge them out again. Actually, it seems as if the second crop of clovers is giving more honey than the first crop. Here, that is a very unusual state of affairs. Second crop here seldom amounts to much. While our crop will not come up to average at this late date, it will be much better than we figured on. The honey is still coming in and it appears it will be a week before we start stripping off all supers. To date it has been all white honey. Usually, our later clover honey darkens in color. This year honey coming in early August is as white as honey in June. There is no doubt but that alfalfa this year is supplying most of our honey, especially in this second flow. The second crop alfalfa has a beautiful bloom and odor, better than the first crop.

We all seem to have some pet theories as to what weather and conditions cause nectar to flow, but after this year, I guess clovers around here give honey when they feel like it, wet or dry, cold or warm. If dry weather cuts short our first flow, why did clovers yield in the second crop with practically the same weather conditions? One thing is certain, however, new seedings of clover are very poor. Dry weather has caused about the poorest catch I've seen. There will be very little new crop clovers next year.

Miscellaneous: With August comes the beekeepers' meetings around these parts, and through them we hope to go around and meet some of the folks we know. It is impossible to get time to meet all of them individually, but at a beekeepers' meeting, we can meet almost everyone we know all at once.—Charles Mraz, Middlebury, Vt.

ONTARIO, August 5.

Another month has passed and today beekeepers locally are still busy getting off the crop that is better than we have had for some years past, even if it is not in line with the bumper yields obtained when sweet clover was grown for seed all around our apiaries.

The season so far has been a record breaker in the way of new experiences. About the earliest honey season we can remember, as alsike and white clover were over by July 1, and basswood was noticed in bloom on a few trees on June 29. While we are mentioning basswood, I am sorry to have to report that again this source of nectar was a disappointment, for we got very little honey even if the trees were loaded with blossoms and the weather seemed to be ideal for nectar secretion.

Although it was very dry during the last three months, locally we have had some fine rains and at this date the bees are on the second growth alfalfa by the thousands. Judging by the great number of bees on the alfalfa and listening to the roar of the bees in the apiaries, one would think that a heavy flow of honey was on, but the storing is very slow, and we must conclude that the nectar they are getting is very thin and that the bees are carrying lots of water that has to be evaporated before the honey is sealed over.

Another record for the season is that while this flow of honey has never been so very heavy, yet it has been continuous ever since early in June. As we have had but few days that the bees could not fly, the result has been less populous colonies than in other years as the field bees are continually wearing out and young bees emerging do no more than keep the population at about the same figure.

Honey Crop: From reports now at hand it appears that while a number of counties in central southern Ontario have a fair crop of honey, many large producing areas in counties bordering on Lake Huron and the Georgian Bay, have very little. This applies also to much of Eastern Ontario, all differences in results being attributed to lack of rainfall.

Miscellaneous: While we have no positive information as yet re the

exporting of honey for this year, yet we are quite reliably assured that export licenses will be granted. Local sales are good at prices averaging at least one cent per pound over last year's figures. Large orders for honey are being given for the troops in training at the different military camps and this is one factor that tends to stimulate prices. Then again corn syrups are much higher in price, and with sugar on the upgrade that means higher prices for jams and other products that compete with honey. As the honey is of good quality this year, we find many families doubling their usual purchases of honey and sales of 100 pounds or more to a purchaser are almost of daily occurence.

Although the acreage of buckwheat is small this year in almost all places that we have heard from, and almost nil in drouth-stricken centers, yet just now we are on the jump locally to get supers above escapes before the dark honey colors the water white article that is common here this year. Buckwheat is grown around about half of our apiaries and while we often welcome a crop of this dark honey, yet there are times, we will admit, when we wish that it would not bloom until a week or two later, the time of course all depending upon how we are prepared to care for the white honey harvest.

In glancing over what we have hastily typed, we must confess that there is but little grain among a lot of chaff. No valid excuse can be given aside from stating that we are very busy and it seems just too hard to concentrate on matters aside from our daily routine. That in my case consists of looking after some 150 mink in the early morning and late evening and then running around to the apiaries during the day, doing but little actual work, but making it appear as though we were doing something. The boys do all the hard work and it has about got to the point, that "everybody works but father" on this ranch.—J. L. Byer, Markham, Ontario.

From California to Minnesota

This is a picture of one of our new hauling units loaded with 315 boxes (duplex type containing 630 four-frame nuks) which we shipped from Southern California to Minnesota.—Woodrow Miller, Colton, Calif.

Asked and Answered

The Growth of Honey Bee Larvae

Question.—What is the rate of growth of worker, drone, and queen larvae?—Gilbert Barratt, Michigan.

Answer.—The rates of growth of the larvae of the three castes are carefully worked out by Henry A. Stabe in an article entitled "The Rate of Growth of Worker, Drone and Queen Larvae of the Honeybee, *Apis mellifera* Linn," and reported on in the Journal of Economic Entomology, April 1930, pages 447-453. Calculations based on his figures result in the following: In 114 hours the worker larva increases in weight 1446 times over its initial weight, the queen larva in 132 hours increases in weight 2933 times over its initial weight, and the drone larva in 168 hours increases in weight 3498 times over its initial weight. If a human baby grew as rapidly, a 6-pound baby at birth would weigh 20,988 pounds at the end of the seventh day. —Jas. I. Hambleton, Beltsville, Md.

Placing Queen Excluder Under the Brood Chamber

Question.—Can you tell me what would be the result of placing a queen excluder beneath the brood chamber, instead of cutting cells?—P. L. Hanscom, Maine.

Answer.—It would be inadvisable to place a queen excluder beneath the brood chamber. This would be comparable to using an entrance guard, or a queen and drone trap over the entrance of the hive continuously throughout the season. It interferes with easy access to and from hives and may result in queenlessness because the old queen is likely to get killed and the young virgin queen cannot get out to mate.

Middle Upper Entrance for Winter is Utilized for the Two-Queen System in Spring

Question.—I have read what Gleanings says about top entrances for winter, etc. I have had good success in wintering in the usual way, with no packing, and the narrowed entrance. I have used a ⅝ Celetex inside the top cover and next to the frames. Would this be worth a trial? Bore a ⅞ hole in the hand hole of the upper super (I winter in double body); then when I raise the upper super at the time of the spring honey flow, bore two more ⅞ holes in the finger hold and place an alighting board on the side of super just below the three holes and follow my two-queen plan, by having a queen in the upper super. Does that sound right?—Thompson W. McKinney, Pennsylvania.

Answer.—It seems to us that a ⅝-inch hole bored in the front of the upper super, either in the hand hole or near it, would work out all right. We do this in wintering our bees around Medina. This upper entrance accomplishes at least two things: It furnishes the bees with a flight hole near the cluster of bees during the winter, and it is a safety valve for each colony in that bees are not smothered in the event the lower entrance becomes clogged with dead bees or ice. Furthermore, this middle entrance is likely to permit some excess moisture within the hive to escape. You could use this upper brood chamber for rearing a young queen or for introducing a laying queen during the spring honey flow, as indicated in your letter. Instead of boring more holes in the end of your upper brood chamber, you could make a small entrance at the bottom by sliding the super back a little on the inner cover.

Shallow Supers for Brood Chambers

Question.—I have been considering keeping my bees in shallow 5⅜-inch hive bodies, using four hives for the brood and food chambers of each hive. Of course, I would also use shallow supers. The advantage of this plan, I thought, might be in getting good straight combs more easily. But would such a system necessarily result in excessive swarming or other troubles?—Philip Clark, Michigan.

Answer.—We know of a beekeeper who kept bees commercially in the raspberry region of Northern Michigan, and used shallow extracting supers throughout, for brood chambers and supers. He used the eight-frame super, which is now becoming obsolete. We would, by all means, recommend the ten-frame size. You mention using four such shallow supers for a brood chamber. Our opinion is that three would be sufficient. As a matter of fact, after the main honey flow starts, each colony could be confined to two shallow supers. You would, of course, need more than two during the winter months. An additional shallow super, filled with honey, reserved to be put on the last thing in the fall, to insure an abundance of stores, should work to advantage. One advantage would be that the frames are lighter to handle, and, of course, the supers are considerably lighter.

XUM

Talks to Beekeepers

M. J. Deyell

Beekeeping 307 Years Ago

A few months ago while giving my office a spring house cleaning I came on to some old bee books in one of the small drawers, the books having been placed there by my predecessor. The oldest book, published in Oxford, England, in 1634, entitled "The Feminine Monarchie, or, the History of Bees", by Chas. Butler, is indeed an interesting relic. So far as I know there is only one older bee book, written by Hyll in 1579, a copy of which Langstroth possessed and is said to be the oldest bee book in the English language.

In attempting to read Butler's book, which, by the way is difficult reading because of the style and spelling, we find some important instructions on apiary management and hive manipulation, which apply to present-day beekeeping. For example, in Chapter II entitled, "The Bee Garden and Seats for the Hives," the author says, "See that it be safe and securely fenced, not only from cattle (which, if they break in may quickly spoil both the bees and themselves) and especially from swine, which by rubbing against the hives are most apt to overthrow them. Also from the violence of de winds: dat when the bees come laden and weary home they may settle quietly. The North fence of your garden should be close and high and therefore it may be best for your bees to be on the South side of your house. But in no wise let the place be shadowed from the South sun".

Swine and Bees Don't Get on Together

The truth of what Chas. Butler said about swine and hives came home to me forcibly a few days ago. I have one of my apiaries in the corner of an orchard. The owner of the orchard decided to put a hog in the enclosure. My better judgment told me to run a fence around the bees but I didn't. The last time I visited the yard I found a hive with three supers overturned, much to my disgust. The hog looked innocent as I entered the yard (but was, in fact, guilty). The writer of the old bee book may have had a similar experience over 300 years ago.

Chas. Butler also mentions the advisability of examining hives of bees during the middle of the day when a large percentage of the bees are in the fields, in order to avoid stings. This is important.

Bees Need Water

A number of the old bee books refer to the importance of having bees near a never-failing source of water. Just today a beekeeper wrote that a neighbor complained because bees were visiting his well and causing trouble. He wondered if placing a trough of water between the bees and the well would divert the bees away from the well.

This calls to mind an experience of eight years ago. We had a good sized apiary in the middle of a large grove about an eighth of a mile from a creek. It so happened a farmer's pump was nearer to the apiary than the creek and the bees preferred the pump. Children in bare feet playing around the well were stung. One day as we were working the bees the owner of the pump approached with fire in his eye and announced very emphatically that we would have to move those blankety blank bees right away. This happened in the midst of a heavy honey flow. The situation required diplomacy. We finally compromised with the farmer by placing a twelve-foot water trough between the bees and the pump and paying a boy to keep it supplied with water. The farmer's wrath was appeased, however, with a ten-pound pail of clover honey. **Moral:** When neighbors complain about bees sweeten those neighbors with honey. A little honey will cover a multitude of sins on the part of the bees.

A Word About Smoker Fuel

Various kinds of fuel are used. We use greasy waste to start a fire in the

smoker, then burlap sacks and only rags to keep it going. Some use rotten wood and sumac bobs. Any material with oil in it should be stored in a small building away from other buildings to avoid the results of possible spontaneous combustion. Just the other day while we were working one of our Western yards I happened to look in the direction of the truck and saw the bag of smoker fuel on the back of the truck, in flames. We cannot say for a certainty that the fire was the result of spontaneous combustion, because, we had lighted our smokers there a few minutes before and may have dropped a spark.

Removing Worthless Combs

The value of a brood chamber should be based on the amount of good straight worker combs available for brood-rearing. Combs that are crooked or contain large patches of drone cells should be replaced with straight combs consisting of worker cells. During this season we have been weeding out poor combs, many of which will be melted up into wax. We have observed that combs with rather large patches of drone cells are not really suitable for super combs because the bees will leave the drone cells empty until the very last and in many instances will leave them empty indefinitely.

Honey Crop Spotted

Unfortunately, some beekeepers secured very little surplus this season, due to unfavorable weather conditions prior to and during the main flow. We may have good equipment, good bees, and good management but if we do not have favorable conditions for normal development of honey plants, also for nectar secretion during the time surplus is ordinarily secured we will not get the maximum crop. We may talk about the weather but cannot do anything about it. Quite a number of commercial beekeepers move apiaries from unfavorable to favorable locations. **A beekeeper can move an apiary but a farmer cannot move a farm.**

Getting Ready for Winter

Beekeepers in the North naturally realize that old man winter is on the way and will be here before we know it. September is an interesting month in the apiary. At the same time it has a tinge of sadness because it marks the beginning of the close of another season. The activity of bees slows down somewhat. Bees become rather listless. They seem to know cold weather is coming. Queens begin to restrict their egg laying. Pollen is stored in cells adjacent to brood. By the way, have you ever noticed how the bees will partly fill cells with pollen and then seal the cells of pollen hermetically with some yellowish glazy substance? It may be propolis, but I'm not sure. I have asked experts, so-called, about this but none of them will say exactly what it is. I think I will have some of it analyzed. At any rate the pollen is covered over with this substance, and then, later on (but not always) the bees will put honey on top of the pollen, especially if the pollen is stored near the center of the brood nest. Can't you see what a marvelous provision is made for the future requirements of the colony? This pollen in the bottom of the cells, surrounded with honey, hermetically sealed, is available for the bees the following spring, as they remove the honey from the tops of the cells, and I dare say this pollen is as fresh and wholesome as it was the day it was placed in the cells by the bees.

During cold spells of spring weather when bees are unable to fly out to collect fresh pollen, this pollen in the combs, carried over from the previous season, enables colonies to proceed normally with brood rearing. Remember that approximately one pound of pollen is required to produce one pound of bees.

Have you ever seen bees pack pollen in the bottoms of cells with their heads? I have. It is an interesting sight. If they don't pack it in with their heads, how is it done?

Don't Spoil Housekeeping Arrangement of Bees

Now this brings me to a very important matter in connection with wintering bees. Some beekeepers seem to think that they can switch combs in brood chambers during the fall months and get away with it. In my opinion it doesn't pay to tinker with the brood chamber (especially during the late fall months) provided there is an ample amount of honey and pollen. If a colony has ample comb space and if the owner has left an abundance of honey for winter and early spring stores, the bees should know, better than the beekeeper, how they want the brood nest.

However, after a number of years' experience in operating bees commercially in different localities, I

(Continued on page 590)

American Honey Institute News Notes

"Old Favorite Honey Recipes"—The postage rate on books is but 1½ cents per pound to any place in the United States. 16 cents is the amount of postage required on a package of 50 books and 33 cents on 100 books. Orders for 2000 or more may be shipped by truck.

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Something to Think About—When we hear that there is to be a big peach crop do we not decide that we are going to eat and can all of the peaches we desire? As a general rule, a big crop and quality go together. When we hear that the peach or orange or another crop is to be small we have a tendency to forget about this product and think of a product we can substitute. Isn't this true of honey or any other commodity? A mass display as well as a big crop seems to create a desire to buy while a short crop and a scant display seem to have the opposite effect. This is a good time to tie in with the peach drive. Peaches and Honey have **Appetite Appeal.**

• • •

National Honey Week, the last week in October, is the time to link honey with various food items. Let us put honey with the bread, cereals, fruits (citrus and dried), coffee, tea, baby foods, meats, gift foods, and other foods that honey associates with. Advertising Copy can be made to tempt the appetite.

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For the Women—Is someone having a birthday at your house? Why not make your favorite cake in a round cake tin? When the cake is baked cut out the center and fill with Honey Ice Cream (recipe on Page 27 of "Old Favorite Honey Recipes"). For a border use Honey Candied Orange and Grapefruit Peel. This honey peel can be arranged in the form of the old rail fence if one has the time to spend on it.

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Watch for the new wraps on Sunkist Lemons and Sunkist Oranges. On the Sunkist Orange wraps there is a recipe for Honey Candied Orange Peel. The Sunkist Lemon wrap has a recipe for Sunkist Lemonade, with honey incorporated as an ingredient.

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The GLASS PACKER, August, 1941, has the following to say about "Old Favorite Honey Recipes":

A NEW HONEY COOK BOOK TO BROADEN THE MARKET

Honey packers and honey buyers will be interested in an unusually complete and well-prepared cook book published by the American Honey Institute, Madison, Wisconsin. Titled "Old Favorite Honey Recipes", this book has the seal of the American Medical Association's Council on Foods and Nutrition, signifying that all the nutritional claims in the booklet have been reviewed and found acceptable.

A section of "Honey Hints" covers infant feeding, types of honey, instructions for storage, how to liquefy granulated honey, etc.

The recipes run the gamut from a cocoa-honey flavored and sweetened beverage to a "sweet potato orange casserole" in the section on vegetable cookery. Honey is presented as an ingredient in breads, cakes, candies, confitures, cookies, drinks, desserts, frostings, meats, salads, salad dressings, sandwiches and vegetable dishes.

• • •

The "Thought for Food" leaflet of August 25th contained a recipe, "Honey Dressing for Salads". This leaflet is published by the Kroger Food Foundation.

• • •

National Biscuit Company distributed recipes for Honey and Nut Wheat Muffins, Honey Wheat Angel Food Cake, Honey Fruit Bread.

TALKS TO BEEKEEPERS

(Continued from page 589)

have come to the conclusion that, when wintering bees outside in double brood chambers the upper brood chamber, sometimes called the food chamber, should be well filled with honey, in addition to the amount of honey that the lower chamber may contain, at the time bees are ready for winter. To bring about this condition, especially in regions where the fall flow is not heavy, it seems advisable to keep the queen in the lower chamber, by means of a queen excluder, during the latter part of the season. In regions where a heavy fall flow occurs, queens occupying double brood chambers are usually forced down into the bottom chamber, due to the fact that bees are less likely to carry honey into supers after cool nights come, than during summer weather. And so, be sure to have the upper brood chamber crammed full of good honey late in the fall. This helps to insure successful wintering.

Spinster

Jane Says;

Honey harvest is over, and we are not disappointed in the yield. With us it is a bountiful one, thanks be! Though our honey isn't as white as in some years, it has a fine flavor, and is very mild. The reason for the color is, we waited too long before extracting.

A neighbor, some miles distant, got a few packages of bees a few years ago. Last year the honey crop —like our own—was a complete failure, and this year again it is not up to par, though there should be no excuse for the bees, both weather and clover bloom being as it should. Am afraid the new would-be-beekeeper may become discouraged, and lay all the blame on the bees. This is one business where much patience and stick-to-itiveness is necessary, but will that chap not be likely to say, "Bees don't pay. I've proved it."

It takes much patient care and eternal vigilance to keep bees properly. Queens, too, play a leading part in making bees pay. A good queen means much more in a bee-colony than a good queen does in ruling a country. The bee-queen's subjects are her own children, and "like begets like."

I was fortunate enough to enjoy a motor trip of over 1000 miles, seeing many parts of my native province, Ontario, and my only regret is, it didn't last long enough. In such a trip, one should be free to spend a few days in places of interest.

We followed the Trans-Canada Highway from Sudbury eastward. From North Bay, many miles were through woodland, all very beautiful, with the Ottawa River at our north, and later, the Gatineau Hills beyond that. Until we got far east, near the older, settled districts, no bees were in evidence.

At Manotick Station, near Uplands, we saw honey harvest in full swing in one good-sized apiary. The hives were well supered and the owner must surely have a splendid return for his labor. Many places we saw big posters displayed with "Honey for Sale," but never a real honey booth anywhere.

We had tea with a relative who has always kept bees, but, due to his son being away, and he alone, his bees have gone their own sweet way this summer, swarming when they felt like it, quite undeterred. He had hived some swarms, but lost more, and his hives didn't boast many supers. Overcrowding and lack of room were of course to blame for the loss of both bees and honey. No honey had yet been taken off, either, which was late for eastern Ontario. We understood his lack of time, but we do feel that unless one can spend time and give bees the care they require, that person should not try keeping them at all. It is usually in neglected colonies that foul brood develops.

Along what used to be called Kingston Highway, we saw many apiaries, particularly when we began to get into fruit country.

Through most of our trip the heat was terrific. On the Mountain at Hamilton, where we visited a nephew in the Sanitarium, it was sweltering as it was throughout all the beautiful fruit-belt in the Niagara Peninsula. Acres and acres of tomatoes, grapes, peaches, pears, cherries, etc., spread as far as the eye could reach, beautiful homes, and grand old trees, all delighted the sight, and will leave lovely pictures "On Memory's Wall". And the only bee I saw in all this fruit belt was one that got in the car and stung me, perhaps to remind me that, like the bees, I should be home garnering fruit for winter, not gallivanting.

And after a long, tiring trip, home at last! Home in the colder Northland, more to be desired than warmth, and fruit, clear streams, and beautiful, old established homes, because to us it is HOME, where we have cleared every acre, and plowed every furrow.

The one thing we envy the Older Ontario is the grand old shade trees. In their hurry to clear the land, our pioneers made too good a job of it forgetting to leave trees for shade. The sooner we remedy this by replanting, the better. It will take years for our trees to gain size and beauty. Even our bees appreciate and require shade.—Spinster Jane.

Editorial

(Continued from page 576)

sailors. Will our government make a like requirement? Unless beekeepers ask for it they will not get this outlet.

No one knows at this writing whether the aggregate crop of honey this year will not be as large as was at first forecast. The yield from white Dutch and alsike except in certain localities is very light. The yield of California orange and sage for this year is much below what the heavy rains predicted. It is below even last year which was low, but the crop of light amber honey, a blend of sage and wild buckwheat is heavy—much above the average of previous years, it is reported. Mr. Andrews on page 579, reports otherwise. The yield of alfalfa and sweet clover in the irrigated regions of the Rockies is spotty from light to poor. The crop in Kansas and Nebraska is light. The honey flow in much of New York, Iowa, Wisconsin, and northern Illinois has been good and the quality excellent. The reports from Michigan are disappointing—from good, poor, and a failure for the season. Some of the largest producers have no honey and unless there is a fall crop will have to feed. The yield in North Western Ohio is spotty, mostly below average. The report for Pennsylvania is conflicting, from good to fair. East Coast mostly good with a good yield for Florida.

Will the price of honey go up further? If the war is prolonged the price may advance some. It should be remembered that there are large quantities of sugar in the U. S., but it is probable that honey will follow the rise of other foods and commodities.

A Subscriber for 64 Years

By H. H. Root

When an individual takes a periodical for 50 years, it is something of an achievement; when the 50 years can be stretched to 60, it is almost a record. L. D. Gale, Mayville, New York, has taken Gleanings continuously for 64 years. His first subscription was sent in 1877.

In those days the industry was young. Many of the pioneers were groping, learning by their mistakes.

At the meeting of the Chautauqua County Beekeepers' Association, at Black's Corners, south of Fredonia, New York, on Friday, July 25, Mr. Gale presented the association with a great box of fruit—very unique in that it contained not only fruit of all kinds arranged by his own hand, but honey. Even though he is eighty-seven years of age, he still stands erect and nearly six feet tall. His eyesight and hearing are good. The average man could feel thankful to be as alert at 77 as our friend is at 87. He is interested in all that goes on around him, and through all the years he has not lost any of his interest in bees. Since his first experience began at the age of three, when he was found before a hive leaning over watching the bees flying in and out, his interest covers four score years and four. What a record—what a contribution!

Buy and Sell Here

CLASSIFIED ADS

Only responsible advertisers and honest advertisements will be admitted to these columns. References required from new advertisers not known to us. Rate—7 cents per counted word each insertion. Each initial, each word in names and addresses, the shortest word such as "a" and the longest word possible for the advertiser to use, as well as any number (regardless of how many figures in it), count as one word. Copy should be in the 10th of month preceding.

HONEY FOR SALE

WHITE clover, new 60's, 6c. Don Kloepfer, Grand Ledge, Mich.

NEW COMB and extracted in season. H. G. Quirin, Bellevue, Ohio.

FOR SALE—Clover honey in new 60's. G. M. Sowarby, Cato, N. Y.

CHOICE white clover honey in new 60's. Noah Bordner, Holgate, Ohio.

EXTRA QUALITY clover extracted. Howard Grimble, Holcomb, N. Y.

FOR SALE—Extracted and comb honey. M. W. Cousineau, Moorhead, Minn.

HONEY—Light and light amber extracted. F. W. Lesser, Fayetteville, N. Y.

GOOD clover honey in sixties and 5-lb. pails. F. L. Barber, Lowville, N. Y.

CHOICE MICHIGAN clover honey in new 60's. David Running, Filion, Mich.

FINEST quality new comb honey, also extracted. N. B. Querin, Bellevue, O.

CLOVER extracted, extra white, new sixties. Irvin Van Devier, Medina, Ohio.

CHOICE clover honey in 60's. R. C. Bish, successor to Moore Apiaries, Tiffin, Ohio.

CHOICE white sweet clover honey in new sixties. E. E. Salge, Strandquist, Minn.

TUPELO honey, barrels, 60's, 10, and 5 lb. pails. Mrs. William Nisbet, Sumatra, Fla.

CLOVER HONEY in sixties and comb honey. George Eykamp, R. D. 6, Evansville, Ind.

FOR SALE—Fancy Iowa white clover extracted honey. Kalona Honey Co., Kalona, Iowa.

FOR SALE—Nice white clover-basswood honey, $115.00 per ton. J. G. Burtis, Marietta, N. Y.

FINEST QUALITY white clover honey. Sample 10c. Arthur Thayer & Sons, Freeland, Mich.

ORANGE, palmetto and mangrove honey in new sixties. Peter W. Sowinski, Fort Pierce, Florida.

FOR SALE—White clover extracted honey in 60-lb. cans. L. S. Griggs, 811 Avon St., Flint, Mich.

EXTRACTED clover and amber honey. Quotations on request. Scott Traxler, Scottsburg, N. Y.

TUPELO HONEY, new 60's and barrels, 5 and 10 lb. buckets. Marks Tupelo Honey Co., Apalachicola, Fla.

CHUNK comb honey in shallow frames, also section comb, and extracted in sixties. C. E. Baier, Cissna Park, Ill.

COMPLETE line comb and bottled honey, pure clover. Also packed in 5's and 60's. Central Ohio Apiaries, Inc., Millersport, Ohio.

SOME extracted in sixties left but all comb and chunk is sold until new crop. Herman Crowther, Cass City, Mich.

FOR SALE—Here we come for your patronage. With tons of fine clover. Sample free. W. S. Earls, New Canton, Ills.

NEW CROP clover. Extracted in new 60's, 6½ cents. Fancy comb $3.50 a case, No. 1, $3.00. Walter A. Wood, Naples, N. Y.

HONEY FOR SALE—All kinds, any quantity. H & S Honey & Wax Co., Inc., 265-267 Greenwich St., New York, N. Y.

LET US show you how you can save on your honey purchases. We also buy honey. H. Blitz, P. O. Box 3452, Philadelphia, Pa.

NEW CROP extra white clover and amber extracted honey. New cans. Prices on request. Sample 10c. Frank R. Parmelee, Le Roy, N. Y.

SELECT LOTS white clover, buckwheat, basswood, and light amber honeys in 60-lb. tins. A. I. Root Co., 224 West Huron Street, Chicago, Illinois.

NEW SWEET clover comb, 14 to 16 oz., well capped, extra nice, white, in new shipping cases, $3.50 case of 24. Clarence Engle, Kearneysville, W. Va.

NO. 1 to Fancy light comb honey, $3.25 per case; No. 2 and amber, $2.75; in window cartons, 25c extra. Extracted, 6½c in 60's. H. R. Shelton, Parma, Mich.

CLOVER-SUMAC extracted honey in 60-lb. cans. Quality very finest. 60-lb. can, $4.50. 7c per pound by the case. Albert Hann, Glen Gardner, New Jersey.

HONEY PACKERS—Write us for prices on carload lots of California and western honeys. We stock all varieties. Hamilton & Co., 1360 Produce St., Los Angeles, California.

NEW YORK State Comb and extracted honey, buckwheat and clover, any quantity, all size packages. Five-pound pails my specialty. Edward T. Cary, Midland Ave. and Tallman St., Syracuse, N. Y.

HEAVY Fancy white comb, $4 case; Mim. 12-oz. Fancy, $3.50; No. 1, $3; Fancy buckwheat, $3; Mixed, $3; No. 1 buckwheat, $2.50; white clover extracted, 7c; amber 6c; buckwheat 6c. C. B. Howard, Geneva, N. Y.

OUR NEW CROP of Michigan clover honey is now ready for the market. It grades from white to water white. New cans and cases. If you are in the market for fine clover honey, write E. D. TOWNSEND & SONS, Northstar, Michigan.

HONEY AND WAX WANTED

BEEKEEPERS TAKE NOTE—We will not guarantee any honey buyer's financial responsibility and advise all beekeepers to sell for cash only, or on C. O. D. terms except when the buyer has thoroughly established his credit with the seller.

WANTED—Comb and amber extracted. Fairland Apiaries, 2 Acacia, Dayton, O.

Honey Wanted

Cash paid for cars and less than cars.

Send samples and best prices.

C. W. Aeppler Company
Oconomowoc, Wisconsin

WANTED—White and amber extracted honey. Fancy comb, also No. 1 comb honey. Comb honey in shallow extracting frames. Beeswax. We render old comb into wax. Prompt remittance. Write us.
THE FRED W. MUTH CO. • CINCINNATI, O.

Honey Wanted

1,000,000 pounds in carload and truck loads for our plant which serves the Southwest.

OLD TAYLOR HONEY CO.
Harlan, Iowa

MOUNTAIN GRAY QUEENS

Do you want gentler bees? If so, introduce some of our Caucasian queens into your colonies. Untested, 50c; tested, $1.50; select tested, $2.00. Order now while you can get these queens at above prices. Service and queens guaranteed.

BOLLING BEE CO., Bolling, Ala.

WANTED—Carload lots only. J. Hassan, 1118½ W. Court Street, Los Angeles, California.

WHITE and light amber extracted and comb honey. George Eykamp, R. D. 6, Evansville, Ind.

WANTED—White clover honey. New cans only. Clover Blossom Honey Co., 721 Kossuth St., Columbus, O.

WANTED—All grades honey, in car lots or less. Send sample with lowest price. Schultz Honey Farms, Ripon, Wisconsin.

AMBER and WHITE extracted, also Comb Honey and Beeswax. Alexander Company, 819 Reynolds Road, Toledo, Ohio.

WANTED—Comb, chunk comb, white and light amber extracted honey. Any amount. Central Ohio Apiaries, Millersport, Ohio.

WANTED—Carlots honey; state quantity, shipping point and price. Mail sample. Bryant & Cookinham, Inc., Los Angeles, Calif.

CASH PAID for extracted clover honey. Send sample and best price. Clover Bloom Honey Co., General Delivery, Shrewsbury, Mass.

HIGHEST cash returns made the day we receive your beeswax. Write for shipping tags and quotations. Walter T. Kelley Co., Paducah, Ky.

CASH PAID FOR carloads and less than carloads of extracted honey. Send sample and best price. C. W. Aeppler Company, Oconomowoc, Wis.

HONEY WANTED—1,000,000 pounds in carload and truck loads for our plant which serves the Southwest. Old Taylor Honey Co., Harlan, Iowa.

WANTED—All grades of comb and extracted honey. Bee supplies and honey containers for sale. Prairie View Honey Co., 12243 12th St., Detroit, Mich.

FOR SALE

BEST Bee Hunting Outfit. Grover, Bristol, Vermont.

QUEENBEE PAINTING outfits $1.00 postpaid. Southwick Apiaries, Waban, Massachusetts.

51 MODIFIED-DADANT 4-story hives with empty frames, cleaned, good as new. John Sueper, Webster City, Iowa.

FOR SALE—1 Hersheiser wax press, $20.00; 2 100-gal. Lewis tanks, $7.00 each. C. Jankowski, Prairie View, Illinois.

WAX worked into high quality medium brood foundation, 15c pound; 100 lbs. $10.00. Fred Peterson, Alden, Iowa.

GLASSWARE, Bee Supplies, at factory prices. Write for quotations. Alexander Company, 819 Reynolds Road, Toledo, Ohio.

BEST QUALITY queen mailing cages, freight paid. Free sample. Bee shipping cages. Vernon Homer, Rt. 5, Menomonie, Wis.

FOR SALE—90 10-frame hives, 95% Three-ply combs. Nice equipment. No disease now or ever. Chas. C. Allen, R. 4, Staunton, Va.

SAVE MONEY by letting us work your wax into wired or regular comb foundation. Large catalog describes everything. You pay only wholesale factory prices, as we have no agents. Walter Kelley Co., Paducah, Kentucky.

COMB FOUNDATION at money-saving prices. Plain, wired and thin section. Wax worked at lowest rates. Comb and cappings rendered. Robinson's Wax Works, Mayville, N. Y.

WRITE FOR CATALOG. Quality bee supplies at factory store prices. Prompt shipment. Satisfaction guaranteed. The Hubbard Apiaries, Manufacturers of Bee Supplies, Onsted, Michigan.

THE ONLY complete line of wax rendering equipment ever offered—the "Perfection" Line. A size and type suitable for every commercial beekeeper. Write for descriptive circular. Robinson's Wax Works, Mayville, N. Y.

BEES AND QUEENS FOR SALE

BRIGHT ITALIAN-AMERICAN Queens, 35 cents each, 3 for $1.00. D. W. Howell, Shellman, Georgia.

ONE 75c three-band Italian queen free to every new customer. L. H. Wagoner, Elon College, N. C.

CAUCASIANS—Untested queens, 40 cts. each, until Oct. 1st. Lewis & Tillery Bee Co., Greenville, Ala.

EMPIRE STATE Italian Queens, bred for honey production, 50c each. B. B. Coggshall and Son, Groton, N. Y.

NORTHERN BRED queens, bright hardy Italians, 50 cents each. Six $2.75. Shirl Baker, Rodney, Michigan.

FOR SALE—70 colonies of healthy state-inspected Italian bees in Root 10-frame equipment in first-class condition. Noah Bordner, Holgate, Ohio.

GOLDEN ITALIAN bees and queens, extra good workers and very beautiful to look at. Queens 50c each, any number. Carolina Bee Farm, Graham, N. C.

GOLDEN QUEENS—Excellent quality. Hardy, gentle, productive, health certificate, satisfaction guaranteed, 50c. O. E. Brown, Route 1, Asheboro, North Carolina.

CAUCASIANS—Tested queens, $2; untested, $1; 10, 75c; 50, 65c; 2-lb. packages with queens, $2; 3-lb. packages, $2.50. Miller's Caucasian Apiaries, Three Rivers, Texas, Oldest exclusive Caucasian breeders west of the Mississippi.

CHOICE BRIGHT Italian queens that are a pleasure to work with. This stock has been bred and selected in the North the past 37 years, for good winterers, hustlers, and gentleness. Price 65c each and $7.00 a doz. Emil W. Gutekunst, Colden, N. Y.

EXTRA YELLOW Italian queens that produce bees a little more yellow than three-banded; more gentle and just as good workers. Untested, 50c each; tested, $1.00. Health certificate and satisfaction. Hazel V. Bonkemeyer, Randleman, N. C. Rt. 2.

NORTHERN BRED, leather-colored Italian Queens, 35c, 3 for $1.00 in adjustable introducing cage. We cooperate with good honey producers in the selection of our breeding queens and believe our stock to be as good as you can buy. Diemer Bee Co. Liberty, Mo.

FOR STRONGER COLONIES, bigger honey crops, and gentler bees, try our prolific well-bred 3-banded Italian queens used for years by leading beekeepers of the U. S. and Canada. Select young laying queens, 50 cents each; ten, 45 cents each; twenty or more, 40 cents each. Prompt deliveries, no disease. We have one of the largest best equipped queen rearing places in the South. H. C. Short, Fitzpatrick, Ala.

HONEY WANTED

Carloads or less—send samples. Write quantity can ship; state if **new** or **used** cans. HONEY PACKERS DIVISION (HOFFMAN'S HONEY).

THE JOHN G. PATON CO., Inc.
630 5th Ave., New York, N. Y.

"She-suits-me" queens, 3-banded Italians, most excellent strain: One queen, 75c, 3 queens $2.00. Stamps accepted for single queen.
Koolairy veil, $1.50 postpaid, SAFIN queen cage, $1, for ten; 15c for one.

ALLEN LATHAM
Norwichtown, Conn.

Pritchard's Queens

Italians, 50c each
10 or more, 45c each

PRITCHARD APIARIES
Sylvester, Ga.

Canadian Queens

Choice Italian queens raised here at Troy, Ont., Can. Sent by return mail, postpaid at 50c each. Tested, $1.00. All kinds of quality Bee Supplies at reasonable prices.

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Troy, Ont.

Australian Beekeeping News
The Leading Bee Journal of the Southern Hemisphere is the
"Australasian Beekeeper"

Subscription 5 shillings per year. Start any time. Inquire for International Money Order for five shillings (Australian) at your Post Office.
Write now to The Editor, P. O. Box 20 West Maitland, New South Wales, Australia.

WHEN WRITING TO ADVERTISERS, MENTION GLEANINGS

Palmetto Quality Queens

Three-band Italians of Finest Quality. Can furnish foulbrood resistant queens. Prices, 1 to 5 queens, 35c each; 6 to 20 at the rate of 3 for $1.00. More than 20, 30c each. No disease.

C. G. ELLISON & SONS
Belton, S. C.

WE WILL SHIP NO BEES OR QUEENS

the remainder of this year but will be prepared to give you better service with the best in Caucasian bees in 1942.

CAUCASIAN APIARIES
Brooklyn, Ala.

Quality Italian Queens

PRICES

One for ....$ .35
Three for ... 1.00
W. O. GIBBS
Willacoochee, Ga.

TOO LATE TO CLASSIFY

FOR SALE—300 supers of white cut comb honey in shallow frames. Ralph Blackman, Portland, Mich.

FINE quality clover, clover-basswood and buckwheat honey. All packed in new cans and cases. Gelser Bros., Dalton, N. Y.

NEW white clover extracted in new 60's, 6½c; also bottled honey. Stanley Benson, Loda, Illinois.

THE INDIAN BEE JOURNAL—The only bee journal in India. Sample copy free. Yearly 7c6d. Apply Editor, Indian Bee Journal. Jeolikote, Dist. Nainital, U. P. India.

FOR SALE—35 colonies Italian bees in 10-frame Standard hives with food chamber. Good stock young queens, wired combs, plenty of stores. Guaranteed no disease. Reason for sale—advanced in years (79). Reliable references. Further information on request. F. Schedtler, Sumner, Iowa.

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FOR SALE—3-frame Root hand extractor in good condition, $10.00. J. H. Mousel, Ledyard, Iowa.

One 2-frame reversible honey extractor with 12" pockets. In good condition. One 3-frame honey extractor with power drive. In very good condition. Both extractors are priced reasonable. Write G. L. Zaruba, Yale, Iowa.

WANTED TO BUY

SIMPLICITY 45 extractor before October. J. Norgren, Junius, S. Dak.

HELP WANTED

WANTED—Experienced helper. Steady employment. Clover Blossom Honey Co. 712 Kossuth St., Columbus, O.

WANTED—In September, strong reliable man, with some experience. Possibility of permanent position. Send references, state wages expected. Ray Wilcox, Odessa, N. Y.

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READ the South African Bee Journal to be conversant with conditions from far afield. Subscription 5/ per year. For further particulars, write to the Hon. Treasurer, P. O. Box 43, Cleveland, Johannesburg, S. Africa.

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American Bee Journal—monthly: published and edited by beekeepers for beekeepers. Full of pictures and tips on care of bees and selling of honey.

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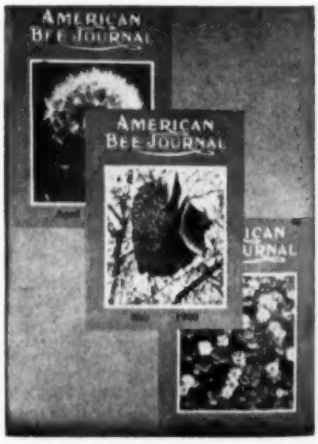

BIG CAPACITY

LOW COST EFFICIENT

Cappings are melted as fast as you uncap. Separating can separates the wax from the honey leaving a solid cake of wax. Melter has double bottom that holds about 3 gallons of water. Pour in hot water and start uncapping at once. Heat with one burner oil stove, hot plate, steam, etc. Honey only slightly darkened, salable; large enough for several hundred colonies. Melter only 19" in diameter, can use and store in small place.

Capping Melter Wt. 19 lbs. Each $5.00

Wax Separator Wt. 7 lbs. Each $1.75

THE WALTER T. KELLEY CO., Paducah, Kentucky

Manufacturers

←Morrison's Northern→

Leather-Colored Italians. Our foundation stock comes direct

←From Northern Italy→

QUEENS

Untested.....50c. Tested.....$1.00. Breeders.....$5.00

All queens guaranteed purely mated

The Cloverdale Apiaries, Cloverdale, Ohio

YORK'S

Package Bees and Queens

Quality-bred Italians

Untested queens, 60c each; 25 or more, 50c each. Tested queens, double price of untested.

2-lb. pkgs. bees with queens, ...$2.00 each

3-lb. pkgs. bees with queens, ... 2.50 each

Adverse weather conditions retarded production considerably on early bees and large demand taxed us to capacity. However, this is overcome and we are prepared to fill your orders without delay. Full weights, young bees, safe arrival, and satisfaction guaranteed.

YORK BEE COMPANY

Jesup, Georgia. U. S. A.

(The Universal Apiaries)

REQUEEN

now

for better wintering and larger profits next year.
Use those outstanding Quality Queens of imported strain Italians.

"They Produce"

1 to 10	untested	50c each
11 to 50	untested	45c each
above 50	untested	40c each

Rossman & Long

P. O. Box 133 Moultrie, Ga.

Three-banded Italians

40c each; 10 for $3.50; 100 for $32.00
We can make shipment promptly.

THE CROWVILLE APIARIES

Rt. 1, Winnsboro, La.

HONEY LABELS
Beautiful Designs

The A. I. Root Co., Medina, O.

TESTIMONY AT HEARING ON PROPOSED F&DA STANDARDS

(Continued from page 565)

City, which has on its wrapper the designation "The Honey Loaf". This brings this loaf definitely into the category of honey breads and it is sold in interstate commerce. This loaf has had a remarkably large sale from its very introduction and its excellent quality speaks for itself. It is made with a delicious table quality honey, 6% liquid basis per 100 pounds of flour or 4.92 dry basis for honey, based on honey of 18% moisture.

The second loaf is the Milk and Honey Loaf of Dugan Brothers, of Newark, New Jersey, and Queens Village, Long Island, N. Y. To my knowledge there is no other extensively distributed milk and honey loaf in the metropolitan area of New York. This loaf likewise enjoys very large sale and its excellent quality also speaks for itself. The amount of honey used in this loaf is also 6% liquid basis to 100 pounds of flour and here again a fine table quality honey is used.

In both these loaves of bread it is important to know that no other sweetening of any kind is used.

Our recommendation is for a smaller quantity of honey, solely for the reason that there are large quantities of strong-flavored honeys produced annually which can be used in bread baking to real advantage at about 4% honey solids, but if used in the quantity delicate honeys are used, such as in the two loaves submitted, the strength of the flavor of the honey would tend to create an off-flavor.

Summary

To summarize, I should like to set down the following points:

1. The use of sufficient honey in honey bread to be able to taste honey, as can be done with 16 parts of honey solids per 100 pounds of flour, is neither necessary nor desirable. To enforce such a standard or anything like it would be disastrous to the honey industry.

2. The characteristics of bread made with honey are exhibited in such bread when only 4% of honey solids is used. These characteristics are shown in color, texture, freshkeeping qualities, and an elusive, delicious flavor.

3. To demand a higher standard might alienate the American baker's present interest in honey, or at

least make him discontinue its use in the present large volume it now enjoys because of cost compared to other sugars.

4. The American honey producer cannot afford to take any chances at present with the loss of any market. The loss of any market would accentuate the Federal Government's problem of helping to relieve his marketing problem.

On the basis of the above points, Gentlemen, I urge you on behalf of the American honey producer to set the standards for honey bread, and milk and honey bread, low rather than high, because I am convinced that to do so will accrue to the best interest of all concerned.

I wish to thank you sincerely on their behalf and on behalf of the American Honey Institute, which represents all of us in the honey industry, for this opportunity that has been accorded us to present this testimony.

Shaw's Italian Queens

This famous strain of Three-banded Italian Queens has made me hundreds of friends. Customers who have purchased them continually since 1923 attest to their merits every season. I will have around 2000 of these ready for shipment, in September and can give 24-hour service up to this amount. If you don't like their looks upon arrival, send them back, and your money will be returned, also the postage for returning them.

—Price—

Untested 30 cents each

Three months old tested, 60 cents ea.

A. E. Shaw, Shannon, Miss.

MORLEY PETTIT

thanks his many friends and customers for good package bee trade.
We have tried hard to give good service and believe no other shipper has done better.
Have plenty of good queens for all comers. 1-11, 55c; 12-23, 50c; 24-49, 45c; 50-up, 40c.
Let us take care of your requeening needs.
Write us when planning for 1942 packages.
MORLEY PETTIT, Tifton, Georgia

WE WILL BUY YOUR "CHUNK HONEY" IN THE SUPERS. . . . WRITE US TODAY.
THE FRED. W. MUTH CO. Pearl and Walnut Cincinnati, Ohio

SOME EXPERIMENTS IN APICULTURE

(Continued from page 559)

60 and 70 degrees F. fermented long ago. Last year the experiment was changed to take in temperatures between 50 and 60 degrees, but unfortunately we are limited for storage space.

The second phase required a study of moisture content, number of yeasts present and the length of time the honey would stand up in storage under average temperature. The present grading regulations are largely based on the results of these experiments.

In the above I have only attempted to outline very briefly some of the projects we have underway in order that you may be acquainted with the type of work the Dominion Division of Apiculture is doing.

Good used 60-lb. cans, 2 in crate, lots of 50 crates or more 50c per crate. Smaller quantities 60c, f.o.b. Cincinnati. We furnish cans free to shippers of honey to us . . . Write us.
THE FRED. W. MUTH CO.
Pearl and Walnut Cincinnati, Ohio

"YES"

Queens via Return Mail

No delays.
I ship when you want them.

Price List

Select Untested Queens, 50c each.
20 or more, 40c each.
Select Tested, $1.00 each.

All Queens Guaranteed Purely Mated.

W. E. Harrell

HAYNEVILLE Alabama

XUM

QUEENS that are Second to None

Italians Caucasians

1 to 25 .....$ .50 each
26 to 99 ..... .45 each
100 or more ..... .40 each

No disease.
Satisfaction guaranteed

WEAVER APIARIES, NAVASOTA, TEXAS

Queens--Queens

Three-banded Italian, extra fine honey-gatherers and very gentle to work with. Select Untested, 50c each, any number. A health certificate with every order. Every queen guaranteed to be good or we replace them.

ALAMANCE BEE COMPANY
Geo. E. Curtis, Mgr. Graham, N. C.

FOR SALE

ITALIAN BEES AND QUEENS

Nothing but the best.
Bright yellow and three-band queens,
35 cents each; 3 for $1.00.
You send for them, they shall go.

GRAYDON BROS.
Route 2. Greenville, Ala.

BEEKEEPING IN SOUTH AMERICA

(Continued from page 557)

There were also colonies of another stingless bee which the people here call "pintado". A colony of pintado will produce about a liter and a half of delicious honey which is supposed to have certain medicinal qualities. The pintado of the warmer climates has yellow stripes, resembling the Italian bees, but the bees are much smaller than the Italian bees. The pintado native of the cooler climate of Pamplona is a beautiful jet black. It is possible that the latter variety would thrive in some of the southern states. Brother Constantino said that the bees described above are inoffensive. However, there is another stingless bee called *corta cabello* (which means that it cuts hair). This bee is very malicious and endeavors to live up to its name. It will get in the hair and make a nuisance of itself generally.

In addition to the bees I saw some very fine domestic rabbits, and a pen of fine homing pigeons. One bird was drooping in the corner and Brother Constantino said that it had just flown over the Pass from Bogotá. Bogotá is over 300 miles from Pamplona and the Pass, or Paramo, as they call it here, has an altitude of more than 14,000 feet.

Cúcuta, Colombia.

WHEN WRITING TO ADVERTISERS, MENTION GLEANINGS

Better-bred Queens
3-banded Italians

3 for $1.00
CALVERT APIARIES

Head all of your colonies with our better-bred Stock. They have proven their good qualities throughout the U. S. A. and Canada. Use them for increase, requeening and swarm control.

CALVERT, ALA.

Carefully Selected Italian
QUEENS---50c

Write or Wire Your Orders. Prompt Service Guaranteed.

The Puett Company, Hahira, Georgia

SOME OBSERVATIONS ON WINTERING

(Continued from page 551)

spring of the year than were the others.

As for leaving pollen in the hives to stimulate spring brood-rearing, we had no data on that subject at that time. I believe at Manhattan, Kansas, there would ordinarily be enough pollen in the fall of the year to maintain good brood-rearing in the spring. However, in western Kansas, there was a dearth of fall pollen, and I wish that we had known at that time the value of pollen as a stimulus to brood-rearing.

If Dr. Farrar says that pollen is necessary for spring brood-rearing, that is good enough for me. I have known him for a good many years and have followed his work, and I also know he never makes statements founded on guess work.

In the October Symposium, Professor Munro tells of a Kansas bee-yard that we visited. This yard was truly an exceptional one. It was surrounded by dense growth of trees, the colonies were all placed on a concrete runway, resting on hive stands filled with leaves, and all of the hives were filled with eleven frames of Jumbo depth, well supplied with stores and plenty of bees. It might truly be said that these hives were insulated on the inside with full frames of honey.

Dr. Phillips and Demuth have recorded in some of the U. S. D. A. bulletins the behavior of bees and suggestions for protecting them during the winter, and have given us the results of their observations in such an accurate and understandable form as would seem to appeal to everyone. The only reason I can see why more beekeepers do not follow their suggestions is because of that human fallacy "It can't happen to me".

Raynham Center, Mass.

WHEN WRITING TO ADVERTISERS, MENTION GLEANINGS

MUTH'S WAX RENDERING DEPARTMENT IS ALWAYS BUSY

Our steam wax presses do perfect work rendering all the wax from the comb and cappings . . . Thousands of beekeepers from all over the nation send their combs to MUTH for rendering . . .

THE FRED. W. MUTH CO.

Pearl and Walnut Cincinnati, Ohio

CAUCASIANS

Extra gentle, prolific, long tongue, little inclined to swarm, dependable workers,—10% to40% ahead of Italians. Have report of individual colonies of my Caucasians gave 520 lbs. and 590 lbs. surplus. Breeding the same strain yet.

CARNIOLANS

Prolific at all times, very gentle, best of workers. One record of 435 lbs. average over whole yard. Beautifully white combs. My strain used in recent Iowa Exp. Sta. test showing Carniolans best for western and northern conditions. Supply many Agricultural Colleges and Exp. Stations with them. Free paper. Still have one imported (1939) breeder,—a remarkable one. No more till European war is ended.

Put in some new queens now to begin next season. Replace any poor or failing ones. Better and safer than early queens from the South next Spring.

Prices: Untested queen 1 to 5, 60c each; 6 or more 50c each. Tested $1.00 each. By Air Mail, 5c extra per queen.

ALBERT G. HANN
Glen Gardner, New Jersey

Moore's Strain

Away back in 1879 I commenced rearing Italian queens with the object of improvement constantly in view.

By careful selection during all these years I have succeeded in producing a strain of three-banded, leather-colored Italian bees, known as MOORE'S STRAIN OF ITALIANS, which has won a world-wide reputation for honey-gathering, hardiness, gentleness, etc.

Send for descriptive circular and read reports from those who have tried them.

Untested queens, 50 cents each.
Select tested, $1.00 each.

J. P. MOORE, R. 3

Falmouth, Ky.

Former address, Morgan, Ky.

Safe arrival and satisfaction guaranteed.

HOLLOPETER SAYS:

"I can't rear all the queens, so I'll rear only the best."

Prolific layers, carefully bred from hardy, hard-working, honey-gathering Italian stock with as many other good qualities as is possible to secure without loss of these prime requisites.

Untested queens, 50c each; tested, $1.00; breeders, $5.00-$10.00.

WHITE PINE BEE FARMS
L. B. 80, Rockton, Pa.
(With Gleanings from 1911)

Fine Italian Queens

GENTLE
HARDY
PROLIFIC

Fine Honey Gatherers

Fall requeening has been proven by successful beekeepers to be very satisfactory. Queens are established for spring egg laying. Weak colonies are made strong.

Only 70 cents each
when ordered in lots of 10
Single queens 75 cents

The A. I. Root Co., Medina, O.

LEST YOU FORGET
the good rule to go by. Buy your
Italian Bees and Queens
from
Alabama Apiaries, Mt. Pleasant, Ala.

2-lb. packages with queen, ...$1.75
3-lb. packages with queen, ... 2.25
Queens, ... .50

No order too small or too large. We are in position to make prompt shipments. Our aim—once a customer always a customer.

ITALIAN -- CARNIOLAN
CAUCASIAN -- QUEENS

Reared in separate apiaries

RONALD KIRK, Rockton, Pa.
Price 50 cents each.

QUEENS---Garon's Progeny-Test Three-Banded Italians
QUEENS---Garon's Daughters of Stock Bred for Resistance to A.F.B.

Buy while prices are low. In all probabilities queen prices will rise next season. Sugar, feed for the bees, and honey are both rising. Save with our Quality Queens while there's still time.

Prices: 1 to 15 at 40c each; 16 and upward, 35c each.

GARON BEE COMPANY, **Donaldsonville, La.**

KELLEY—"The Bee Man"

Queens

35c each or 3 for $1.00

Select Laying—3-banded Italian Queens shipped promptly from Paducah.

The Walter T. Kelley Co., Paducah, Ky.

Honey Containers

PRICES SUBJECT TO CHANGE WITHOUT NOTICE

All our tin containers are standard size and packed with covers and bails at the factory. Glass containers are clear, packed with caps and put up in cartons suitable for reshipping. If your order is for $50 at the prices shown, deduct 5%; if $100, deduct 10% in ordering tin and glass containers or both together.

	A	B	C	D	E
2½ lb. cans, 100 in ctn., wt. 31 lbs.	$3.80	$3.80	$3.80	$3.80	$3.80
5 lb. pails, 50 in ctn., wt. 27 lbs.	2.90	2.95	3.10	3.10	3.10
10 lb. pails, 50 in ctn., wt. 45 lbs.	4.30	4.40	4.60	4.60	4.60
5 gal. cans, 16 in ctn., wt. 54 lbs.*	5.10	5.10	5.10	5.25	5.25
½ lb. jars, 24 in ctn., wt. 12 lbs.	.72	.78	.72	.68	.74
1 lb. jars, 24 in ctn., wt. 17 lbs.	.88	.98	.90	.90	.92
2 lb. jars, 12 in ctn., wt. 14 lbs.	.60	.66	.60	.62	.62
3 lb. jars, 12 in ctn., wt. 18 lbs.	.65	.72	.67	.67	.67
5 lb. round glass pails, 6 in ctn., wt. 11 lbs.	.52	.58	.52	.56	.54
2½ lb. square glass pails, 12 in ctn., wt. 15 lbs. Stocked at Lynchburg only					.79
5 lb. square glass pails, 6 in ctn., wt. 11 lbs. Stocked at Lynchburg only					.64

*Can only be shipped 16/c. Write Sioux City for bulk prices.

WINDOW CARTONS

These beautiful pink and green cartons with a large cellophane window show up section honey to the best sales advantage. The color combination blends wonderfully with the white comb surface and the large window shows an enticing area of comb to the buyer.

REVELATION COMB HONEY WRAPPERS

	100	500
649—colored 4¼	$ .90	$3.95
664—plain 4¼	.60	2.70
658—colored Bag 4¼	1.05	4.35
430—Bag filler device, wt. 2 lbs.; ea.		.50

Above postage extra. Wt. 100, 1 lb.; 500, 5 lbs. Write Lynchburg for prices on plain wrappers.

644—4¼"x1⅞" Beeway
645—4¼"x1½" No Beeway
646—4"x5"x1⅜" No B'way
100, $1.00; 500, $4.50
1000, $8.75.
Weight 6½ lbs. per 100; 55 lbs. per 1000. Postage ex.

A—F.O.B. Watertown, Wis.
B—F.O.B. Sioux City, Iowa
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BRANCHES: COLONIE & MONTGOMERY STS., ALBANY, N. Y.; 1117 JEFFERSON ST., LYNCHBURG, VIRGINIA; 110 W. MAIN STREET, SPRINGFIELD, OHIO; 214 PEARL ST., SIOUX CITY, IOWA.

Send your order to our office nearest to you.

September Queens

Let's requeen those poor colonies before cold weather.

We can furnish either Italians or Caucasians promptly.

Prices

1	to 24	$ .50
25	to 99	.45
100	to 499	.40

Air Mail or Clipped at no extra cost.

The Stover Apiaries

Mayhew, Miss.

"Old Favorite Honey Recipes"

The new 40-page book put out recently by **American Honey Institute** is going over in a big way.

THE DAYTON POWER & LIGHT COMPANY

Representative of the Rural Electric Home Service Department asked for copy of "Old Favorite Honey Recipes" to have in their files to refer to when customers want honey recipes.

IROQUOIS GAS CORPORATION

Luella M. Fisher, Directress in Charge of Home Service, will use "Old Favorite Honey Recipes" in testing and demonstration work among women's groups in city of Buffalo.

KMBC OF MIDLAND BROADCASTING CO., KANSAS CITY

Caroline Ellis, Director Happy Kitchen, will use recipes from "Old Favorite Honey Recipes" in her Happy Kitchen Broadcast.

Write to **American Honey Institute, Madison, Wisc.** for particulars regarding this valuable book.

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